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M E M O R A N D U M

TO: Susan Sylvester, Director, Operations and Hydrologic
Data Management Department

FROM: SFWMD Staff Environmental Advisory Team

DATE: June 14, 2011

SUBJECT: Weekly Environmental Conditions for Systems Operations

Summary

Discharge from Lake Kissimmee averaged 176 cubic feet per second (cfs) at S65 over the week. Lake Okeechobee stage is 9.68 feet NGVD, which is 0.18 feet lower than a week ago, 0.92 feet lower than a month ago, and 4.77 feet lower than it was a year ago. The current stage is 3.50 feet lower than the historical average for this date and 2.34 feet lower than the simulated average using the current regulation schedule (LORS 2008). Average salinity levels in the St. Lucie estuary are poor for the oyster, *Crassostrea virginica*, considering the location in the estuary and time of year. In the Caloosahatchee Estuary, the 30-day average salinity at the Ft. Myers station is 21.6 practical salinity units; as such, conditions are poor in the upper estuary for tape grass, *Vallisneria americana*. Salinities at Shell Point and the Sanibel Causeway indicate that conditions are good for seagrass in San Carlos Bay, but poor considering the salinity preference of the oyster, *Crassostrea virginica*.

Extremely dry conditions dominate all conservation areas; from 87% to 100% of their surfaces are exposed. Note: All of the Ridge and Slough patterns and habitat are experiencing water depths far below ground, further degrading the remaining patterns. This subtropical patterned peatland is extremely rare globally. This is the third severe drought affecting this area since 2006.

North and central WCA-3A are slightly wetter than a week ago, but the rest of the Everglades are drier. Most of the conservation areas and Everglades National Park (ENP) are drier than a month ago except for portions of Big Cypress Preserve, ENP, and southern WCA-2B. Depths in most of the region are now two feet or more lower than a year ago. Salinity continues to climb across Florida Bay.

Weather Conditions and Forecast

Heavy showers and strong storms mainly southeast today. Light west steering winds will combine with good moisture and instability to enhance seabreeze showers/storms south of the Lake mid afternoon through early evening. Local rains to 2.5" are likely in the Conservation Areas. A weak frontal boundary will drop into central Florida Tuesday, so look for activity to decrease south of the Lake and increase north of the Lake tomorrow afternoon. This front will wash out over south Florida on Wednesday and steering winds will carry showers/storms westward, so look for rains to focus interior south through west of the Lake on Wednesday afternoon. The next ten days precipitation outlook is below average with low confidence.

KISSIMMEE BASIN

Kissimmee Basin Rainfall

The Upper Kissimmee Basin received 0.5 inches of rainfall in the past week and the Lower Basin 1.0 inches (SFWMD Daily Rainfall Report 6/14/2011).

Upper Kissimmee Basin

Lakes in the Kissimmee Chain of Lakes (KCOL) are at, slightly above, or within 1.1 feet below regulation schedule (Table 1). The USACE interim operating schedule and the most recent SFWMD position analysis for S65 are shown in Figures 8-9.

Table 1. Departures from KCOL flood regulation or temporary deviation schedules (feet NGVD). Data are provisional real-time data from SFWMD DualTrend; reported discharge values are averages for the week ending on the report date unless otherwise specified.

6/14/2011

Water Body	Structure	Schedule	Discharge (cfs), week's average	Today's average discharge (cfs)	Today's Regulation Stage (SFWMD Operations Control)	Today's Stage (SFWMD Operations Control)	This week's departure from schedule	Last week	Two weeks ago	Three weeks ago	Four weeks ago	Five weeks ago
Lakes Hart and Mary Jane	S62	F	0		59.5	58.9	-0.6	-0.5	-0.4	-0.4	-0.6	-0.5
Lakes Myrtle, Preston, and Joel	S57	F	0		60.0	58.9	-1.1	-1.0	-0.8	-0.7	-0.7	-0.7
Alligator Chain	S60	F	0		62.0	61.0	-1.0	-0.9	-0.8	-0.9	-1.0	-1.1
Lake Gentry	S63	F	0		59.5	59.1	-0.4	-0.3	-0.2	-0.3	-0.4	-0.5
East Lake Toho	S59	S	27		55.2	55.3	0.1	0.1	0.1	0.3	0.1	0.0
Lake Toho	S61	S	85		52.1	52.3	0.2	0.1	-0.1	0.2	0.1	0.1
Lakes Kissimmee, Cypress, and Hatchineha	S65	F	176	152	49.0	48.8	-0.3	-0.2	-0.1	0.0	0.1	0.2

T = temporary schedule, F = USACE flood control schedule, S = Temporary snail kite schedule

Snail Kites. KCOL snail kite nesting statistics as of June 2011. Data from University of Florida, Survey 5.

Water body	Kites	Nests				
	Total birds	Total nests	New	Active	Failed	Successful
E. Toho	80	63	7	20 (32%)	19 (30%)	24 (38%)
Toho	130	79	1	9 (11%)	40 (51%)	30 (38%)
Kissimmee	15	16			12 (75%)	4 (25%)
Jackson	8	2		1 (50%)	1 (50%)	
Marian	1	0				
Cypress	1	0				
Hatchineha	2	5			5 (100%)	



Photo. A nestling tri-colored heron in Rabbit Island colony, Lake Kissimmee, Kissimmee Chain of Lakes, early June 2011.

Lower Kissimmee Basin

Discharges and stages at Lower Basin structures are shown in Table 2. Estimated Phase I area floodplain water depths are mapped in Figure 10; Kissimmee River floodplain stages are shown in Figure 12.

Table 2. Mean discharge at S-65x structures and Phase I area river channel dissolved oxygen and floodplain mean water depth. Discharge and stage data are provisional real-time data from SFWMD OASyS DualTrend; reported values are averages for the week ending on the report date unless otherwise specified.

6/14/2011

Metric	Location	This week's average	6/7/2011	Two weeks ago	Three weeks ago	Four weeks ago	Five weeks ago
Discharge (cfs)	S-65	176	272	474	521	843	1091
Discharge (cfs)	S-65A	159	231	447	521	834	1056
Discharge (cfs)	S-65C	80	161	403	521	803	961
Headwater stage (feet NGVD)		33.4	33.3	33.3	33.3	33.5	33.7
Discharge (cfs)	S-65D	228	258	449	521	850	1012
Discharge (cfs)	S-65E	116	123	267	521	648	778
DO concentration (mg/L)	Phase I river channel	**	**	**	**	**	**
Mean depth (feet NGVD) *	Phase I floodplain	0.06	0.06	0.08	0.10	0.13	0.16

* Data from South Florida Water Depth Assessment Tool (SFWDAT); data are for two days previous to report date shown.

** Data not available.

Water Management Recommendations

No new recommendations at this time.

KCOL Hydrographs

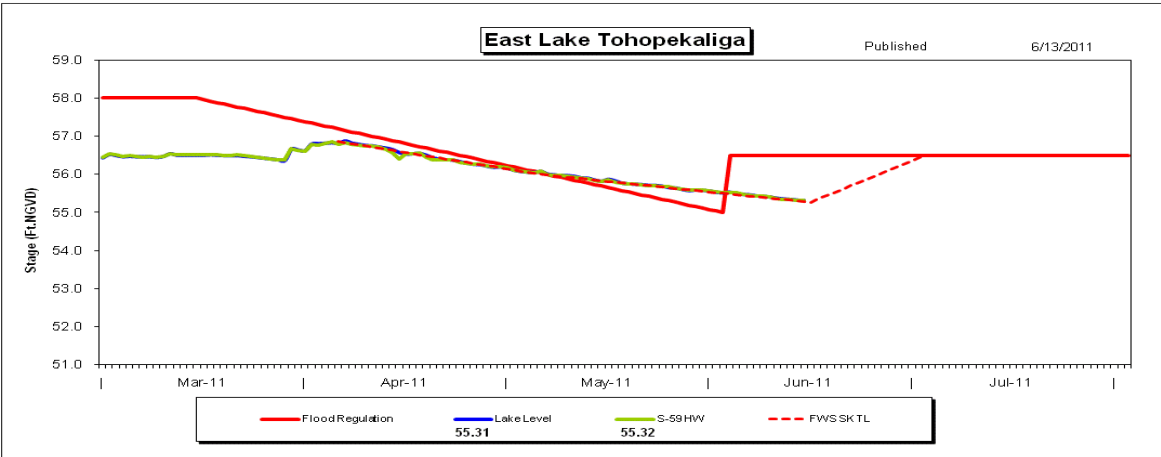


Figure 1.

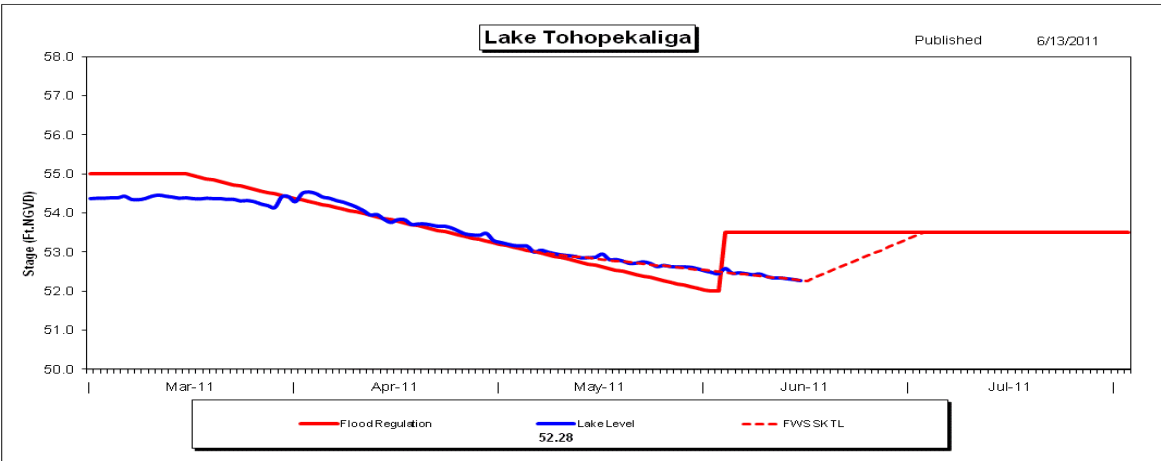


Figure 2.

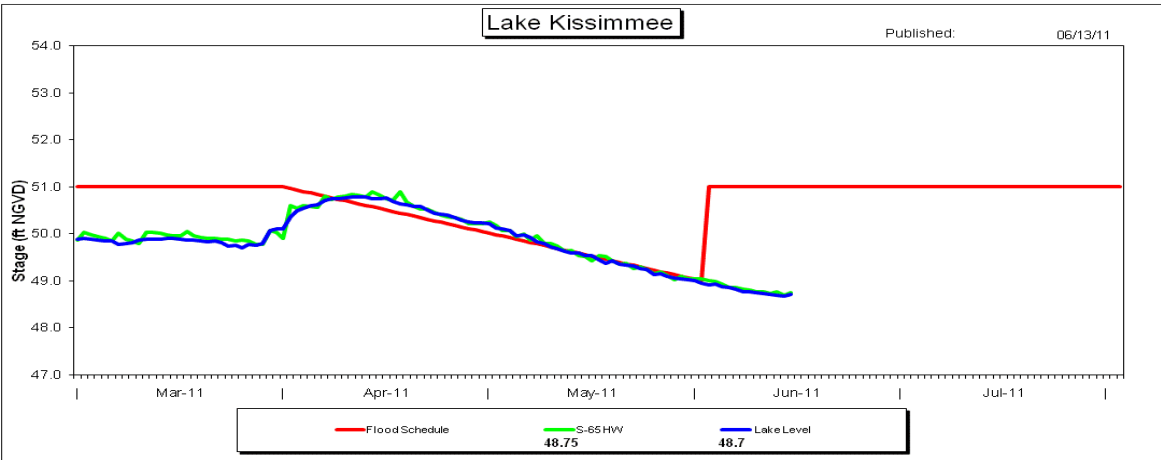


Figure 3.

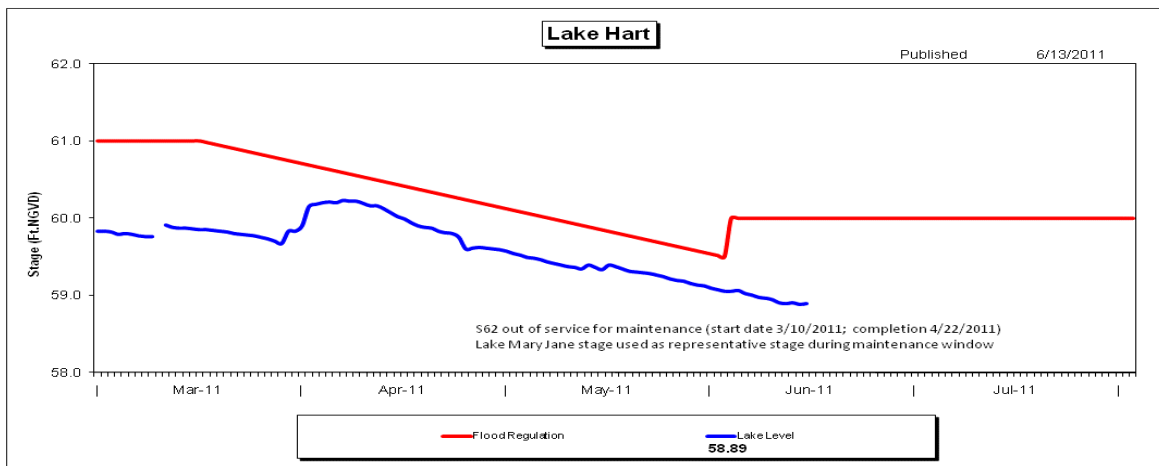


Figure 4.

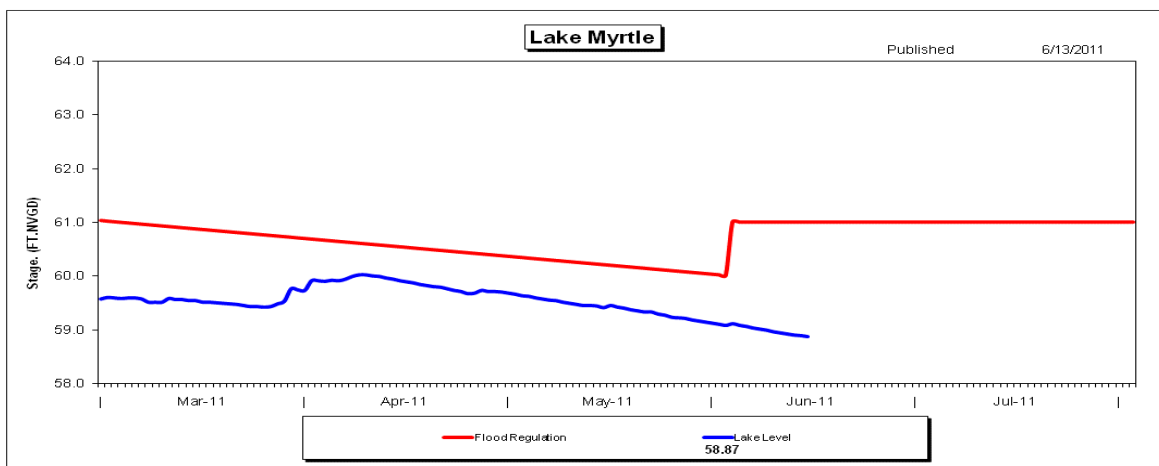


Figure 5.

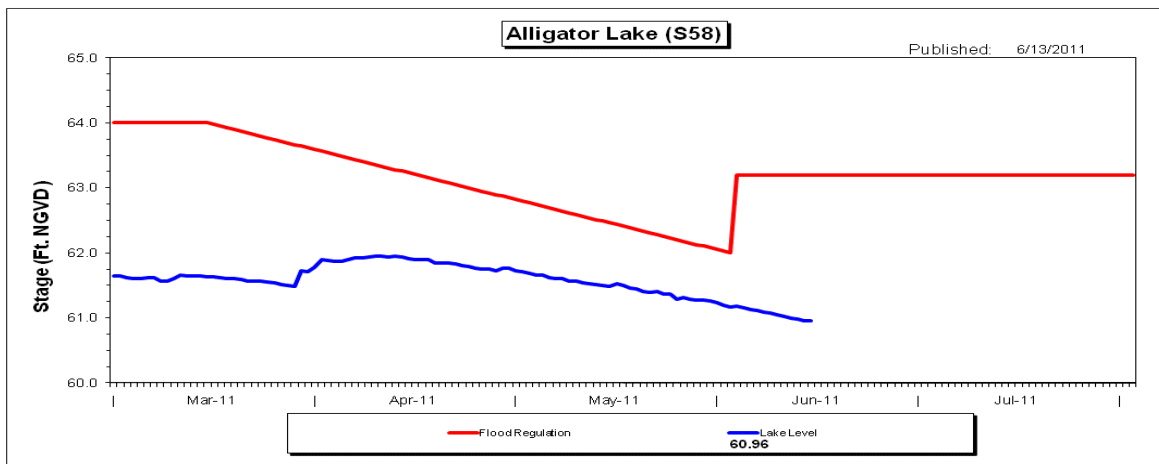


Figure 6.

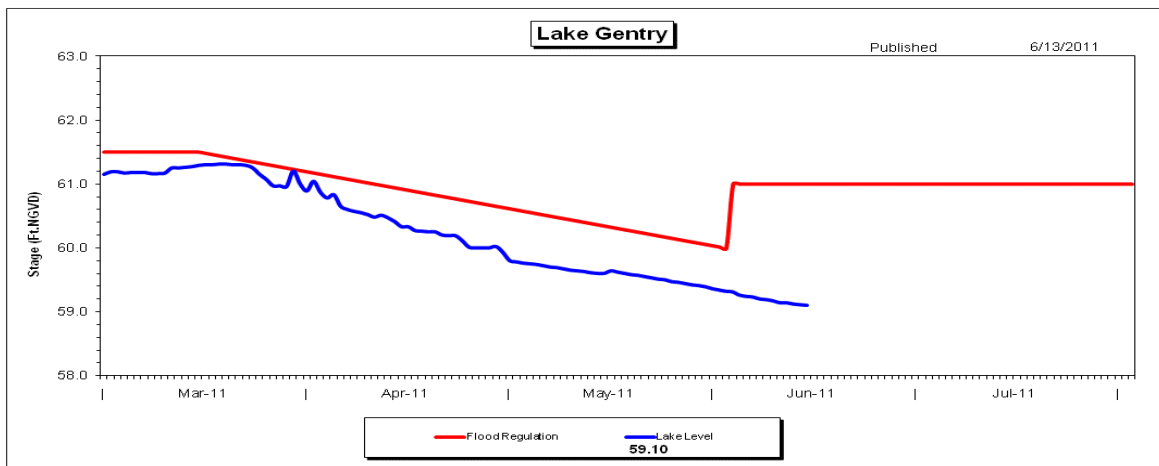


Figure 7.

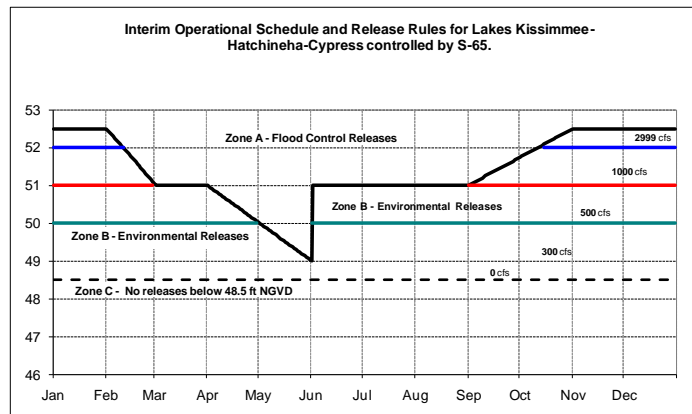


Figure 8. Interim operations schedule for S-65.

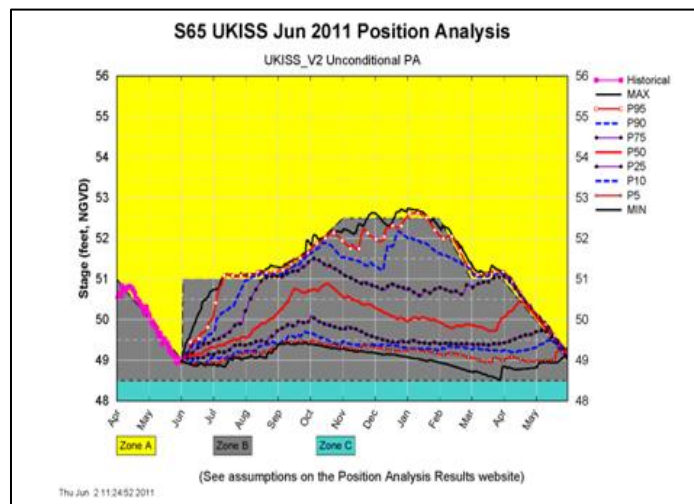


Figure 9. Most recent Position Analysis for S-65 headwater stage (Lake Kissimmee).

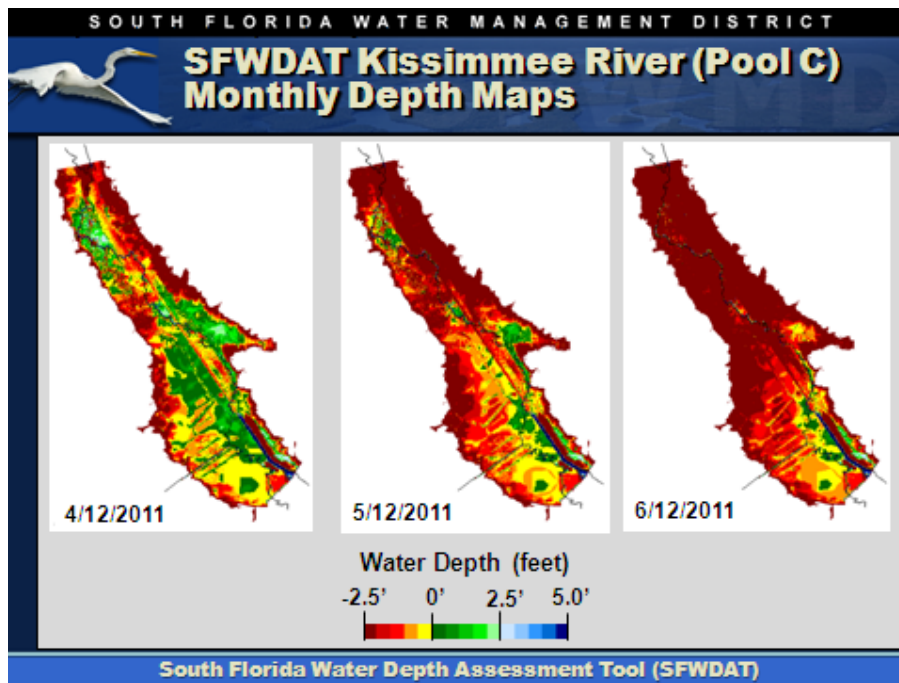


Figure 10.

Kissimmee River Phase I Restoration Area Floodplain Hydrographs

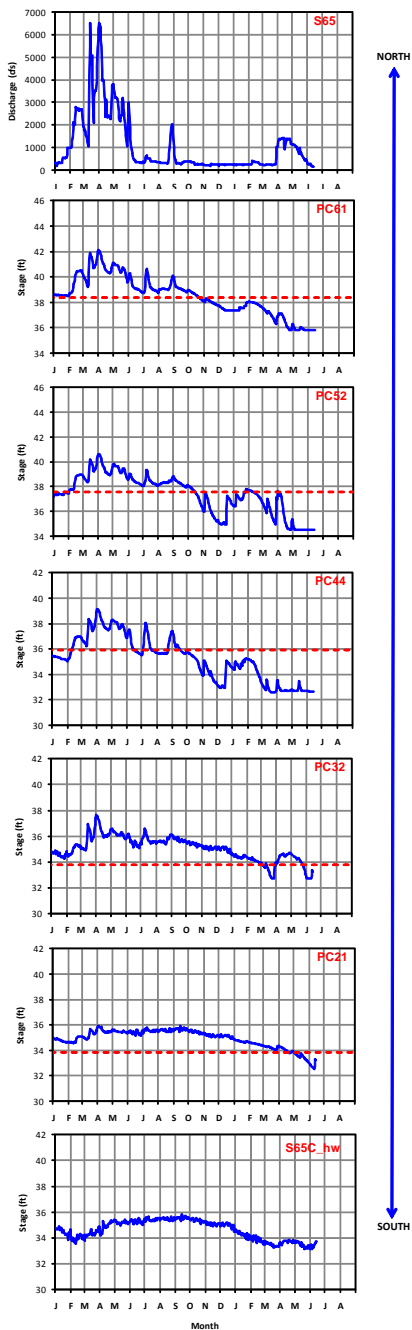


Figure 11. Discharge at S65, stages at five monitoring stations in the Phase I area of the Kissimmee River floodplain, and headwater stage at S65-C in the past 12 months. The most recent data (~2 weeks) are provisional real-time data from SFWMD DualTrend; previous data are from SFWMD DB-HYDRO (validated). Dashed lines are ground elevations.

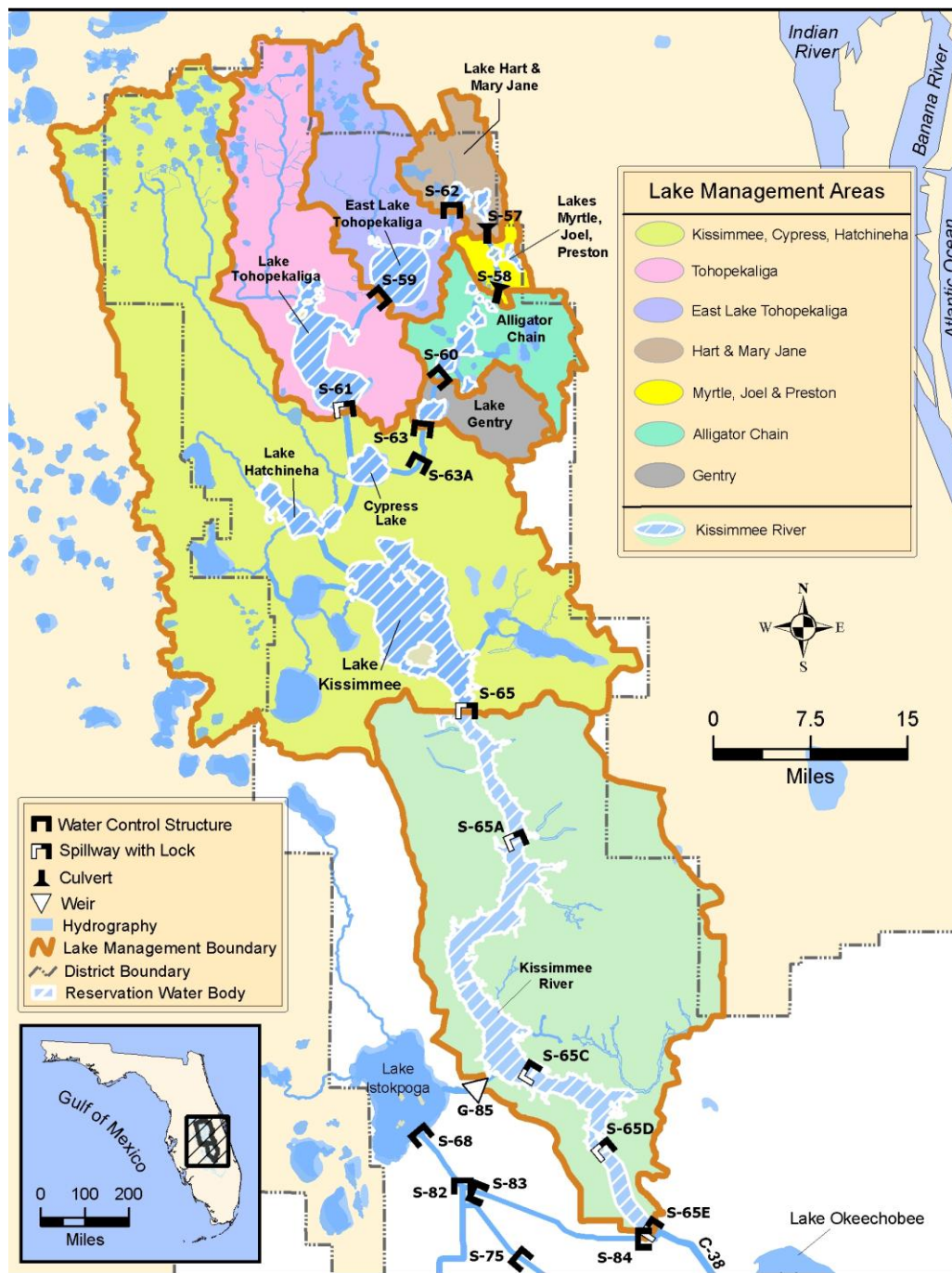


Figure 13. The Kissimmee Basin.

LAKE OKEECHOBEE

Lake Okeechobee:

According to the USACE web site Lake Okeechobee stage is 9.68 feet NGVD for the period ending at midnight on June 13, 2011. This value is based on the use of four interior Lake stations (L001, L005, L006, and LZ40) and the following four perimeter stations (S4, S352, S308 and S133). The Lake level has declined by 0.18 feet since last week, equivalent to the loss of approximately 2,600 inundated acres, and is 0.92 feet lower than a month ago and 4.77 feet lower than a year ago (Figure 1). The Lake is in the Water Supply Management Sub-band and is now below its MFL (Figure 2). The current stage is 3.50 feet lower than the historical average for this date and 2.34 feet lower than the simulated average using the current regulation schedule (LORS 2008). Lake inflow is reported as 77 cfs, all of which is coming through S65E (weekly average 105 cfs).

Total Lake outflow is estimated at 1438 cfs consisting of flows through the following structures. S354 is not reporting.

Structure	Flow cfs
S354	NR
S351	700
S352	440
S308	58
L8	40
S77	~200

According to Raindar 0.54 inches of rain fell directly over the Lake during the past seven days which in part accounted for the reduced rate of decline this past week.

Lake stage continues to decline. The marsh is now entirely dry, and the large bays are beginning to dry out as well (Figure 3). Areas colonized by submerged aquatic vegetation (SAV) continue to shrink, although there may be some lakeward movement of plants as deeper areas become shallow enough to allow light to penetrate to the Lake bottom (Figure 4). The loss of marsh habitat puts additional stress on any remnant native apple snail populations and increases the probability that a multi-year recovery period will be necessary to restore apple snail populations to their pre-drought condition.

The FWC state wide snail kite coordinator relayed the University of Florida's fifth seasonal survey for Lake Okeechobee covering the period from late May to early June 2011. Current data indicates that there have been 44 snail kite nests on the Lake this season. There is one new nest, seven active nests (including the one new nest), 23 failed nests, and 14 successful nests.

Lake Okeechobee scientists completed their last wading bird foraging survey for the season on June 11. Approximately 13,600 wading birds were noted foraging in remnant canals on the southern islands and along the outside edge of the littoral zone. This was the highest number of foraging birds noted this season and may reflect the lack of foraging opportunities in the areas surrounding the Lake rather than the quality of available foraging on the Lake. Nevertheless, it clearly indicates the importance of the Lake as a foraging refuge for wading birds during drought conditions.

Lake Okeechobee field crew report that a number of boat ramps around the Lake are no longer usable due to declining water levels.

Water Management Recommendations

Indications are that Lake levels may continue to fall for some time. Consequently, operational activities that limit the release of Lake water should be practiced wherever possible. At the current Lake stage, the entire Lake Okeechobee marsh and large portions of South Bay, Moonshine Bay and Fisheating Bay for all intents and purposes are dry and continued declines in Lake stage will extend negative impacts further into the near shore zone. The longer the duration of low Lake stages, the more severe impacts become and the more time it will take the ecosystem to recover.

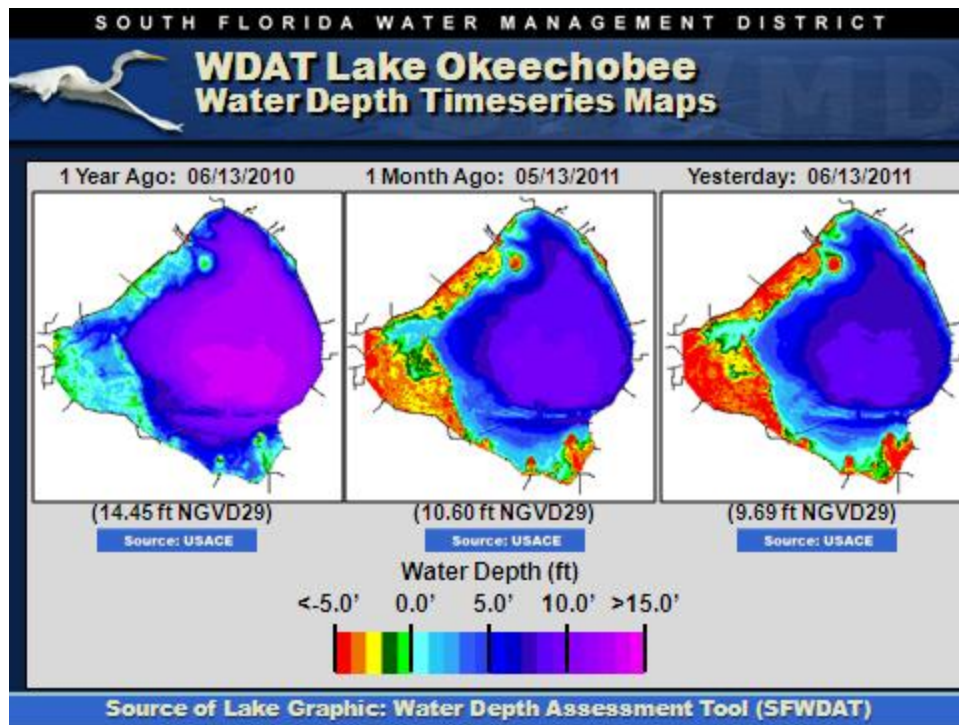


Figure 1

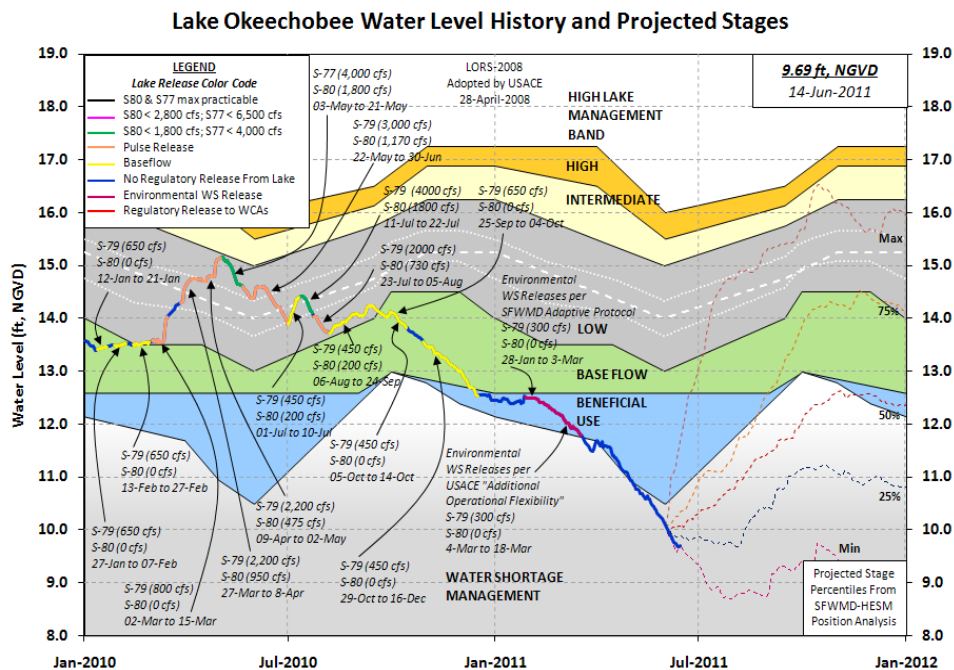


Figure 2



Figure 3: Main Boat Trail South Bay June 8, 2011

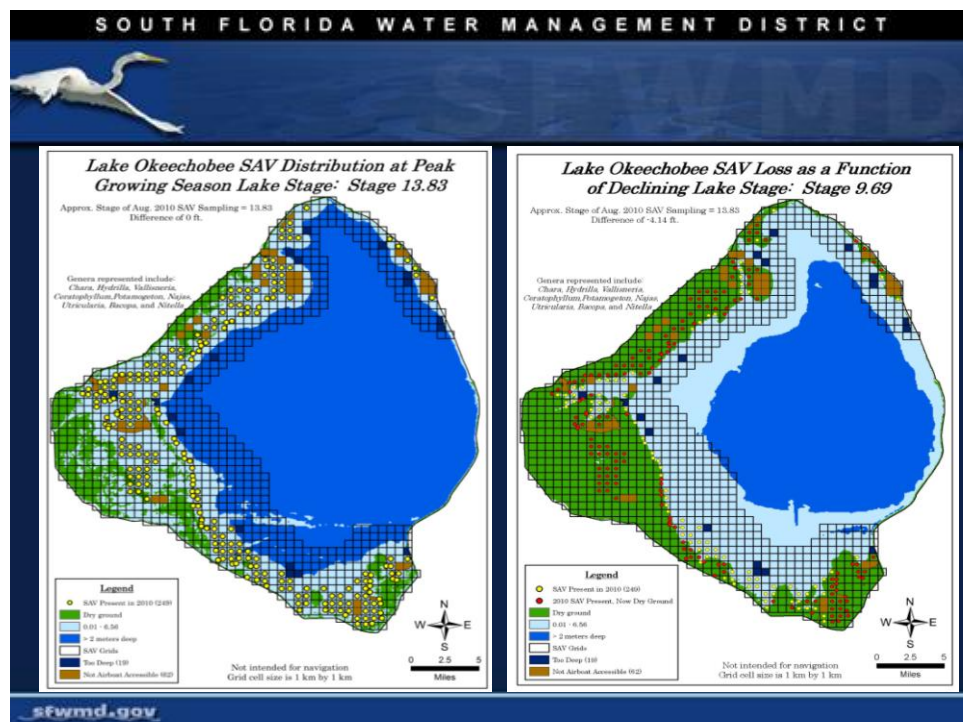


Figure 4

Lake Istokpoga:

According to the USACE web site Lake Istokpoga stage on June 14, 2011 was 37.72 feet NGVD which is 0.04 feet lower than last week. The Lake is 0.53 feet below schedule and 0.22 feet above

the zone C line (Figure 5). According to Raindar, 0.97 inches of rain fell in the Lake Istokpoga watershed during the past seven days. Because of the limited vertical range of the Lake Istokpoga regulation schedule, fluctuations in Lake level have minimal impacts on Lake ecology.

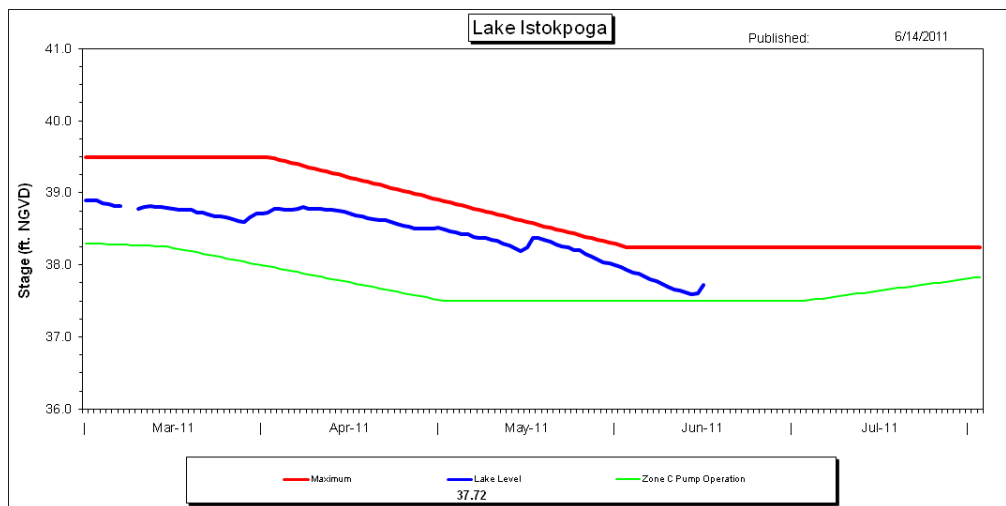


Figure 5

ESTUARIES

St. Lucie Estuary:

Over the past week, flow averaged 0 cubic feet per second (cfs) at S-80 (Figures 1 and 2) and was 2029 cfs at S-308. Provisional data indicate that discharge averaged 0 cfs at S-49 on C-24 and 159 cfs at S-97 on C-23. The current weekly average salinity (in bold) at the three monitoring sites in the St. Lucie Estuary are given below in practical salinity units (psu), along with the previous week's (in parenthesis).

Weekly Average Salinity (psu)			
Sampling Site	Surface	Bottom	Envelope
HR1 (N. Fork)	27.4 (26.6)	28.5 (28.0)	NA ¹
US1 Bridge	30.6 (29.9)	30.6 (29.8)	8.0 – 25.0
A1A Bridge	34.0 (33.6)	34.5 (34.3)	20.0 – 31.0

¹Envelope not applicable.

Over the past week, average salinity increased throughout the estuary (Figures 3 and 4). The 30-day moving average of surface salinity at the US1 Bridge is above the preferred range. Salinity conditions in the estuary are poor considering the time of year, the location in the estuary, and salinity preference of the oyster, *Crassostrea virginica*.

Caloosahatchee Estuary:

During the past week, flow averaged about 191 cfs at S-77, 91 cfs at S-78, 0 cfs at S-79 (Figures 5 and 6). The current weekly average salinity (in bold) at the seven monitoring sites in the Caloosahatchee estuary are given below in practical salinity units (psu), along with the previous week's (in parenthesis).

Weekly Average Salinity (psu)		
Sampling Site	Surface	Bottom
S-79 (Franklin Locks)	18.8 (15.7)	19.5 (17.7)
BR31	19.0 (NR ¹)	19.1 (NR)
Val I75	18.4 (16.4)	20.2 (17.7)
Ft. Myers Yacht Basin	23.4 (21.9)	23.8 (22.2)
Cape Coral	29.0 (28.6)	30.1 (28.9)
Shell Point	35.1 (35.2)	35.3 (36.0)
Sanibel	37.0 (36.3)	38.1 (37.5)

¹Not reliable or not reporting.

Over the past week average salinity increased throughout the estuary (Figures 7 and 8). The 30-day moving average salinity is 15.4 psu at Val I-75 (Figure 9) and 21.6 psu at Ft. Myers; therefore, conditions are poor in the upper estuary for tape grass, *Vallisneria americana*. Salinities at Shell Point and the Sanibel Causeway indicate that conditions are good for seagrass in San Carlos Bay, but poor considering the salinity preference of the oyster, *Crassostrea virginica*.

Monitoring data collected by the River, Estuary and Coastal Observing Network of Sanibel-Captiva Conservation Foundation indicated that dissolved oxygen concentrations at Ft. Myers ranged between 4.6 and 8.1 mg/L, and at Shell Point between 3.9 and 6.6 mg/L. Chlorophyll *a* concentration at Ft. Myers ranged between 0.0 and 21.0 µg/L. At Shell Point, chlorophyll *a* concentrations generally ranged between 0.5 and 1.5 µg/L.

The Florida Fish and Wildlife Research Institute reported that *Karenia brevis*, the Florida red tide organism, was not detected in water samples collected this week alongshore between Pinellas and Collier counties or offshore of Pinellas, Sarasota and Collier counties and the Florida Keys (Monroe County).

Water Management Recommendations

St. Lucie Estuary Performance Measure (PM) update:

The 30-day moving average (mean) of surface salinity at the US1 Bridge is being utilized as an indicator of estuarine health. Salinity at this location should range from eight to about 25 psu based on the most favorable salinity conditions for the eastern oyster. Salinity greater than about 25 psu increases the potential for predation on the oysters. The 30-day mean salinity is above this range at about 29 psu, but should not cause significant impacts to eastern oyster populations at this location or areas upstream. Since salinity over some of the oyster beds between the US1 Bridge and A1A Bridge is greater than 30 psu, it is considered poor conditions for oysters downstream of the US1 Bridge.

Recommendation: Conditions in the SLE are acceptable environmentally. It is recommended that the estuary should not receive inflows from the Lake or from C-44 basin runoff.

Caloosahatchee Estuary Performance Measure (PM) update:

The salinity PM being utilized for the Caloosahatchee Estuary is in accordance with the "Final Adaptive Protocols for Lake Okeechobee Operations (September 16, 2010)". The 30-day moving average (mean) salinity at Station VALI75 (I-75 bridge) is being utilized as an indicator of estuarine health. Salinity at this location should be maintained below five psu based on the most favorable conditions for tape grass. The District predicts freshwater inflows in order to forecast salinity two weeks into the future at the I-75 Bridge. If predicted salinity is greater than five psu at any time within

the next two weeks, the estuary needs inflow from S-79 to lower the salinity in the upper estuary where tape grass is present. The need for inflow is defined as: “Estuary needs water when the 30-day moving average salinity at the I-75 bridge is projected to exceed 5 psu within 2 weeks”. The 30-day mean is forecasted to be greater than five psu within two weeks (Figure 10). Therefore, the salinity criterion indicates the estuary needs additional flow this coming week (Figure 11); however, the current Lake Okeechobee water level is within the water shortage band which precludes a recommendation for water releases.

Recommendation: Although the Caloosahatchee estuary needs freshwater to reduce salinity, it is recommended that no water releases be made from Lake Okeechobee according to water shortage rules unless otherwise authorized by the District’s Governing Board.

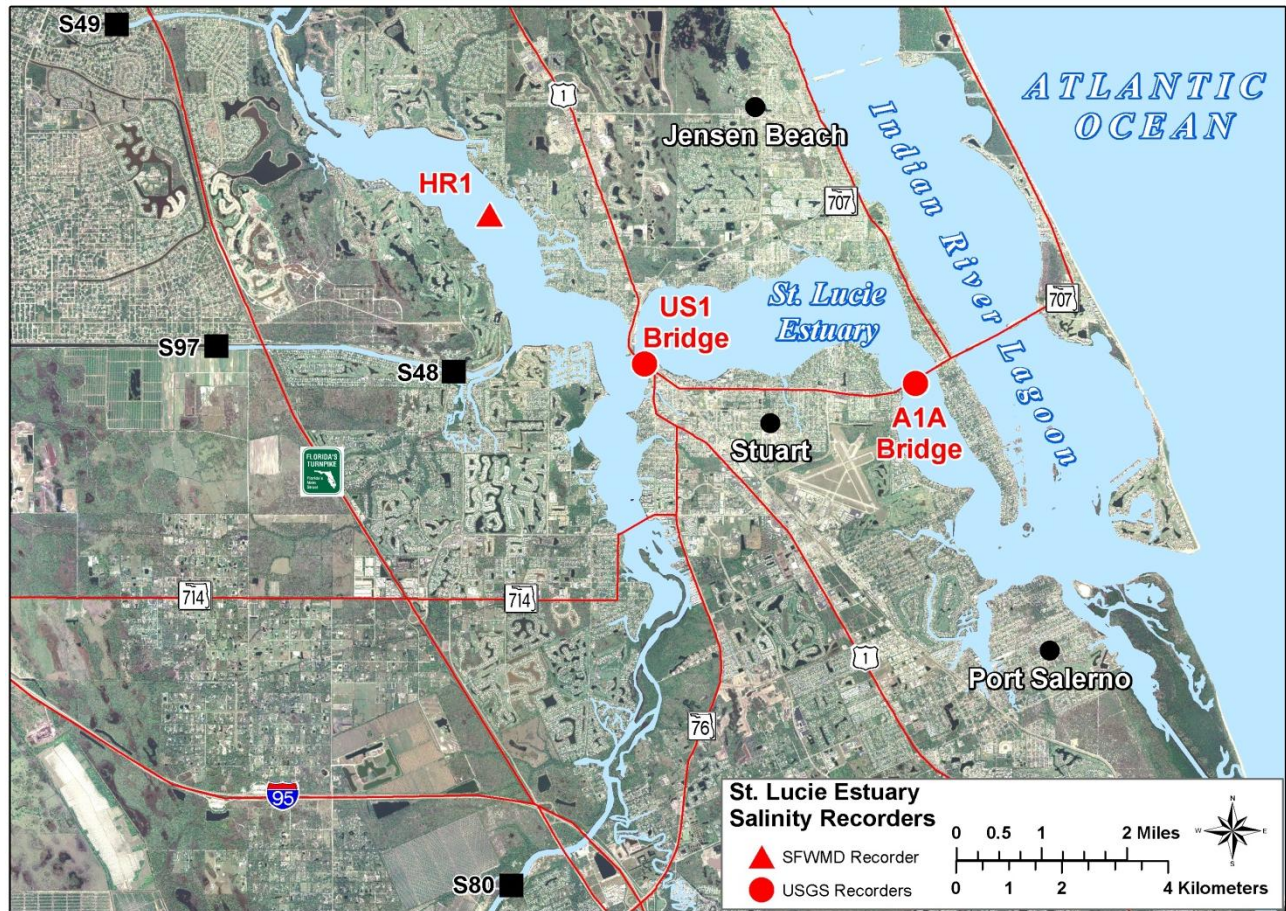


Figure 1. Salinity stations in the St. Lucie Estuary.

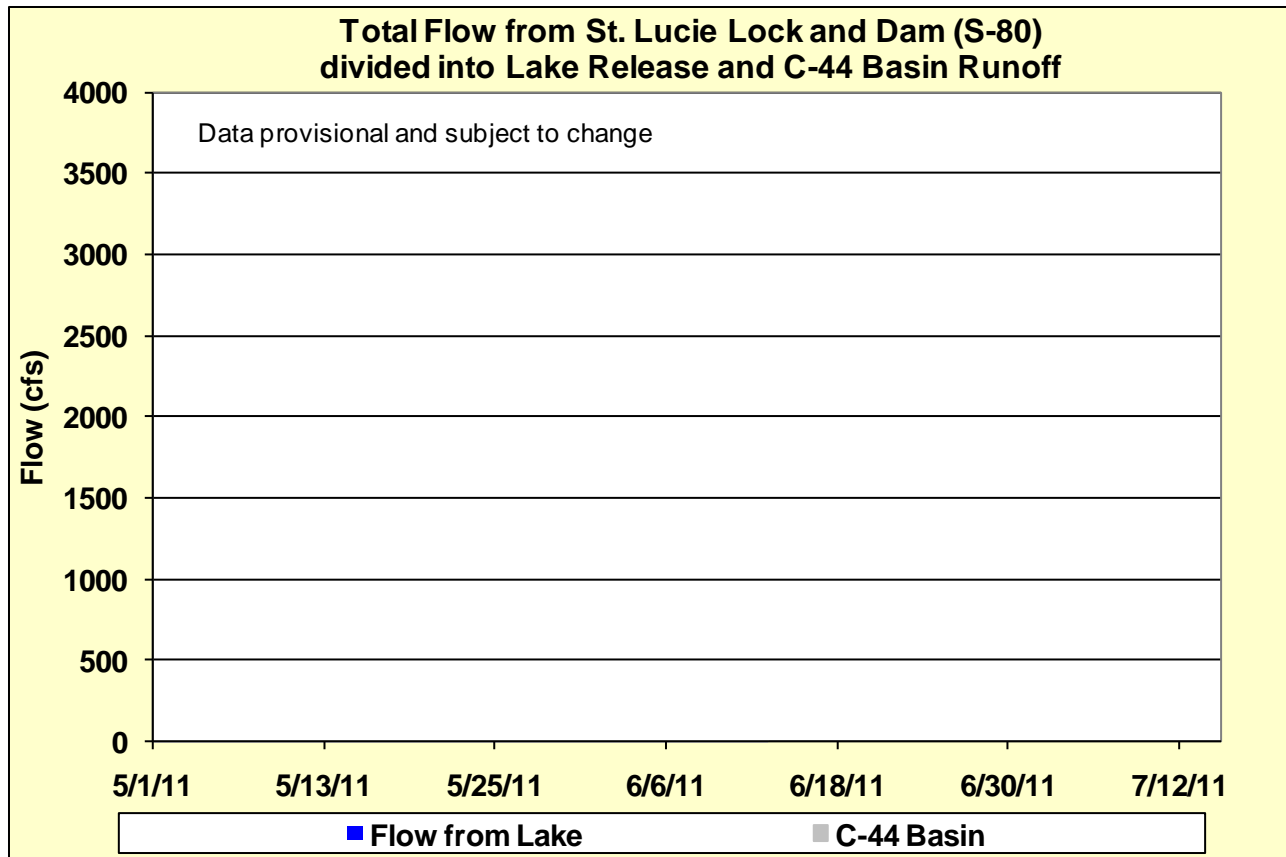


Figure 2. Estimated freshwater discharges from Structure 80 into the St. Lucie Estuary.

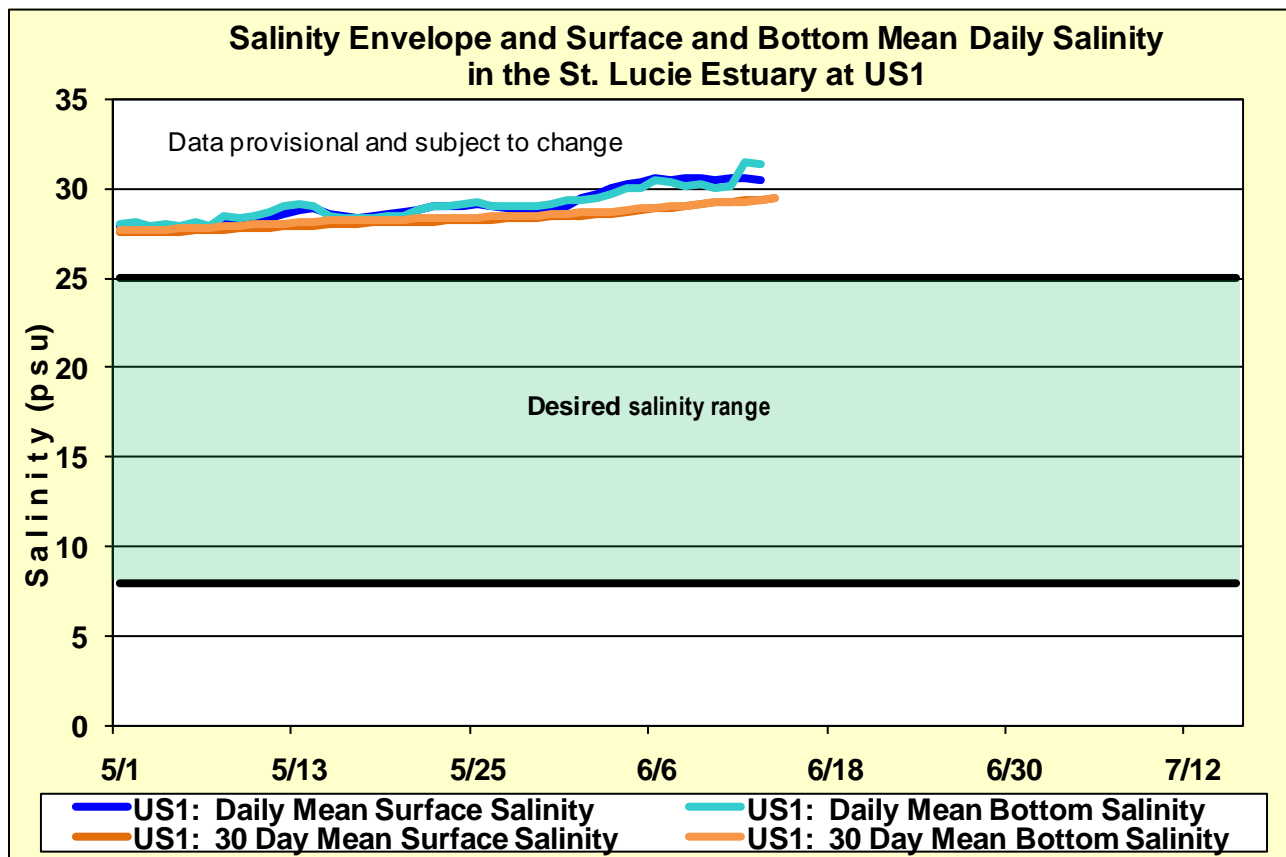


Figure 3. Daily mean and 30-day mean salinity at the U.S. Highway 1 bridge.

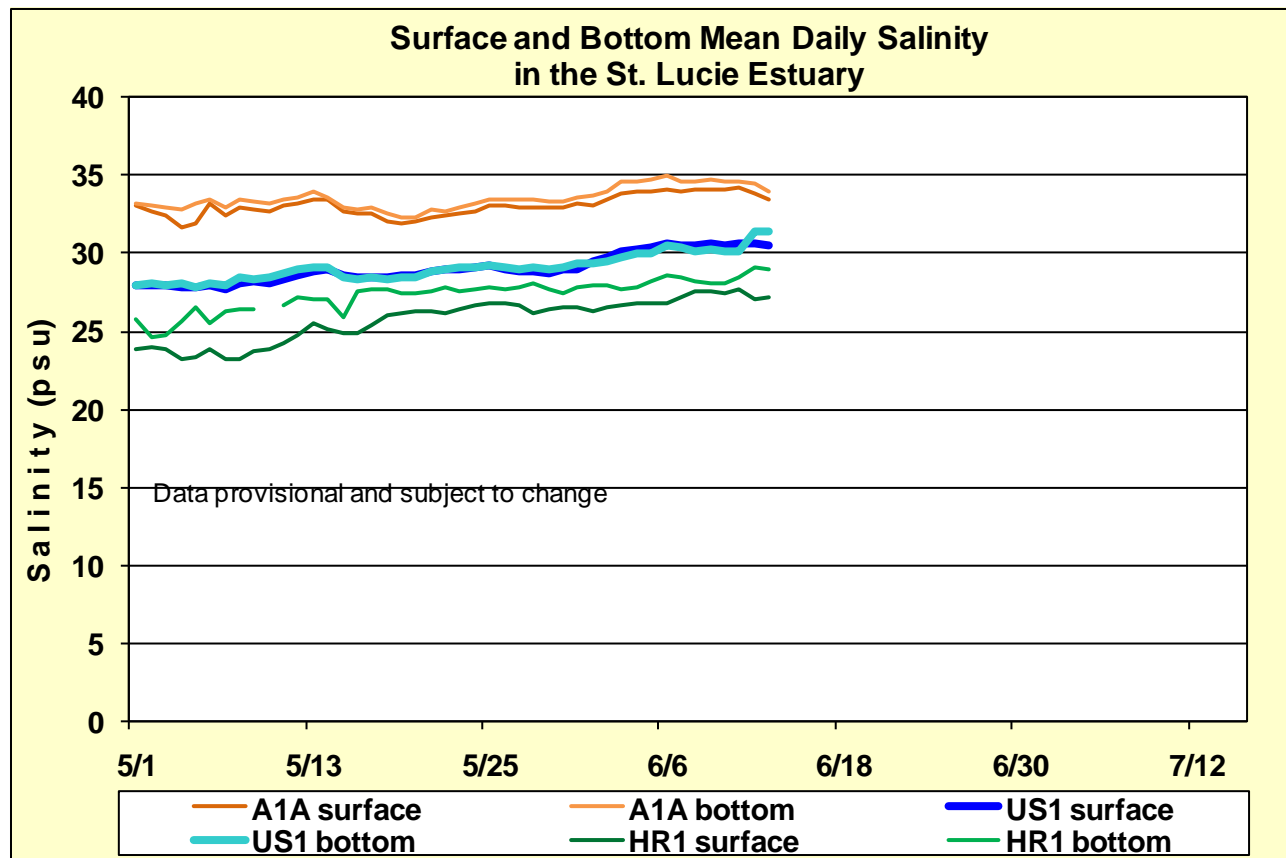


Figure 4. Mean daily salinity at the A1A and HR1 stations.

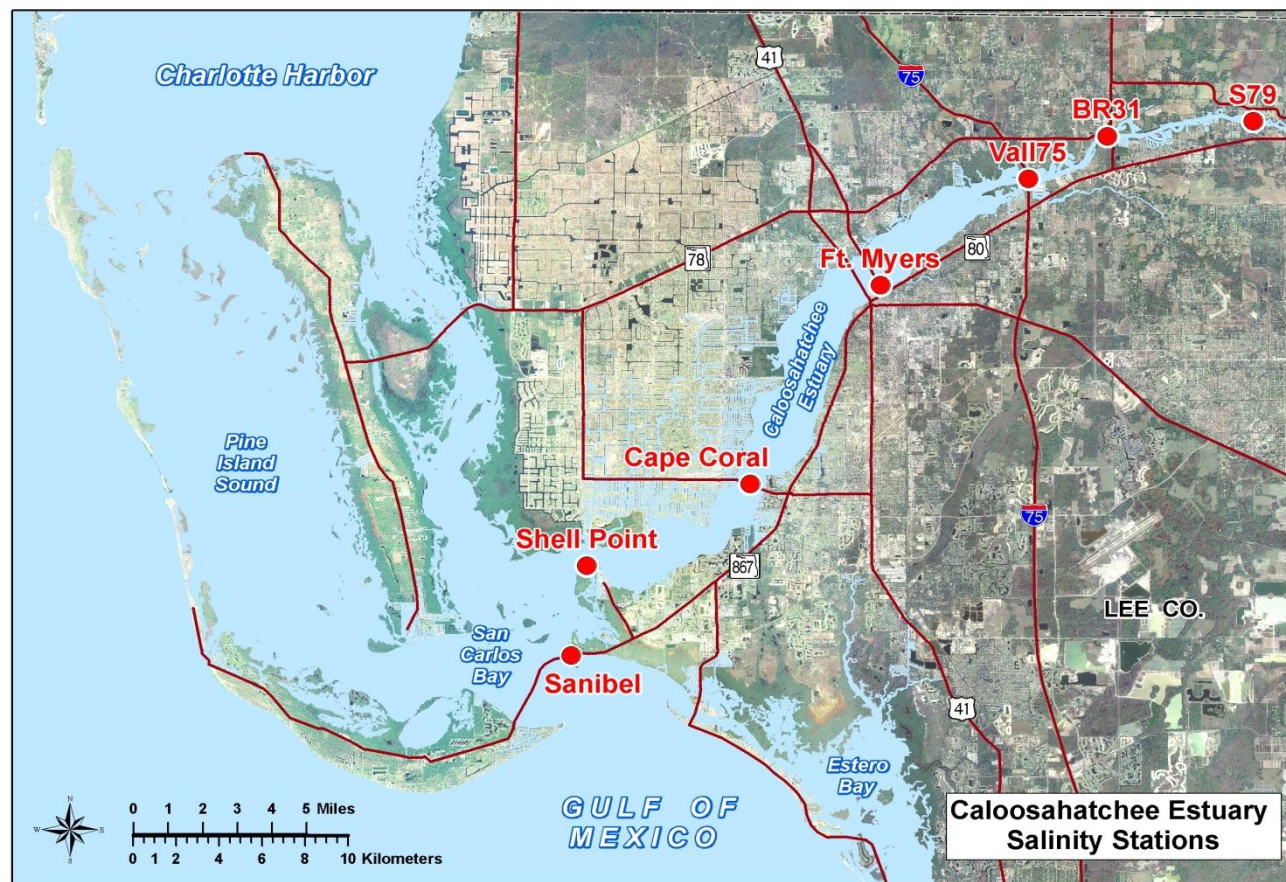


Figure 5. Salinity stations in the Caloosahatchee River Estuary.

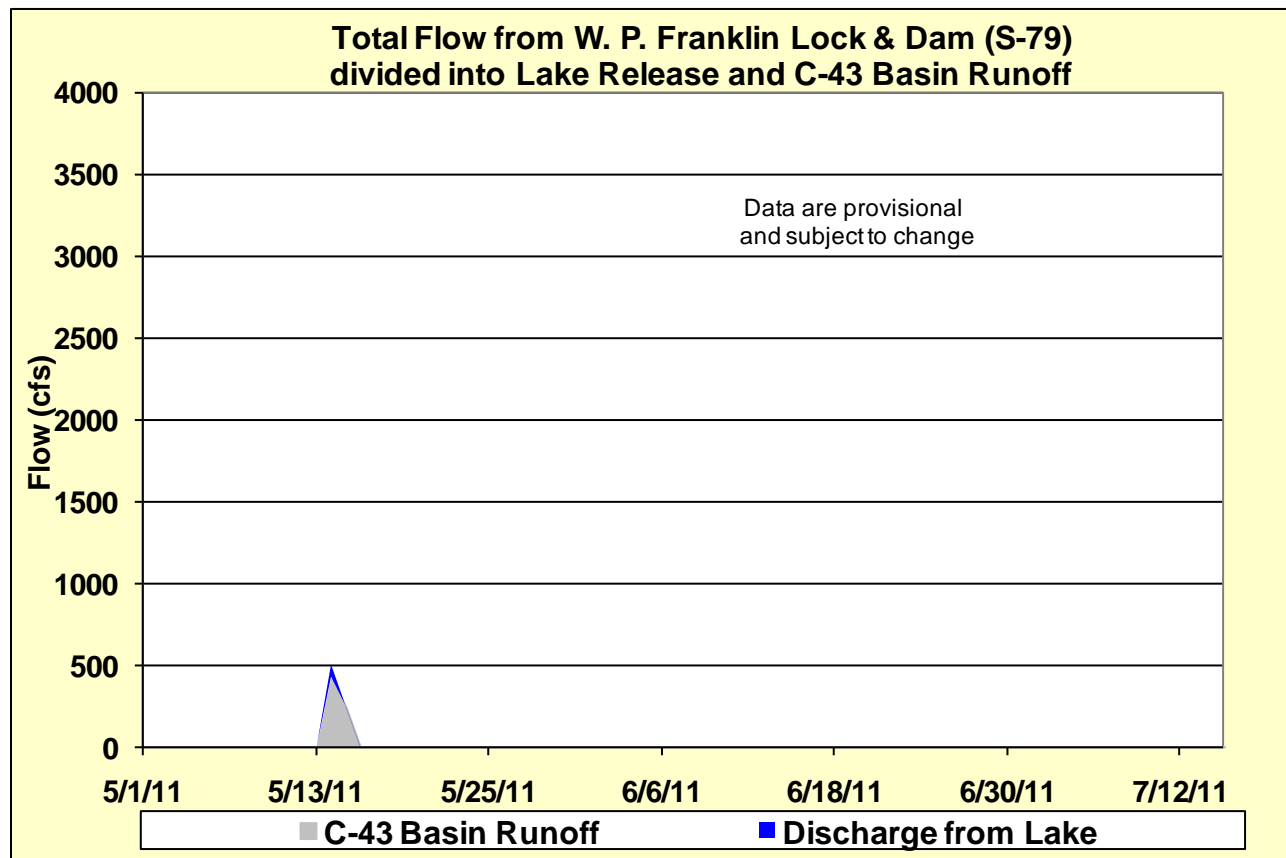


Figure 6. Freshwater flows from Structure 79 into the Caloosahatchee River Estuary.

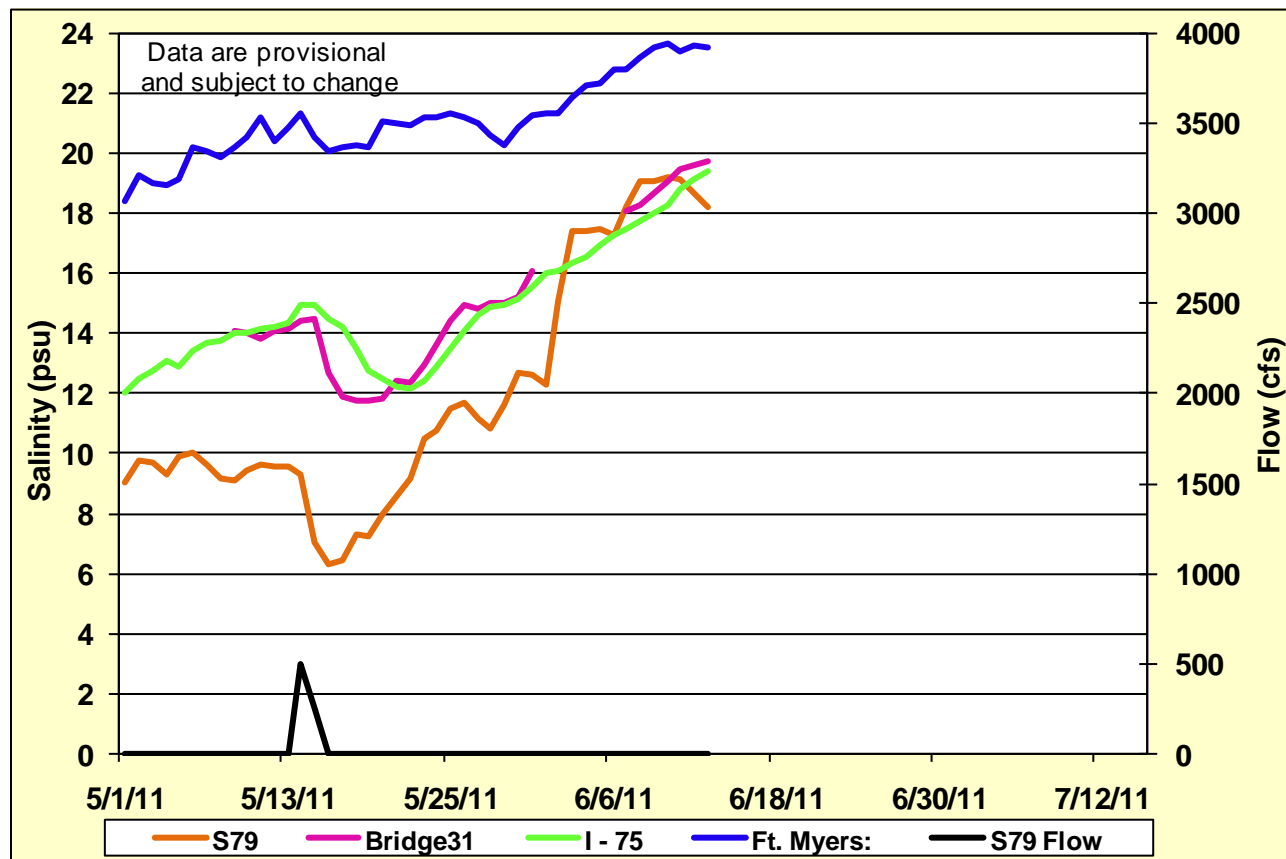


Figure 7. Mean daily flows at S-79 and salinity at upper estuary monitoring stations.

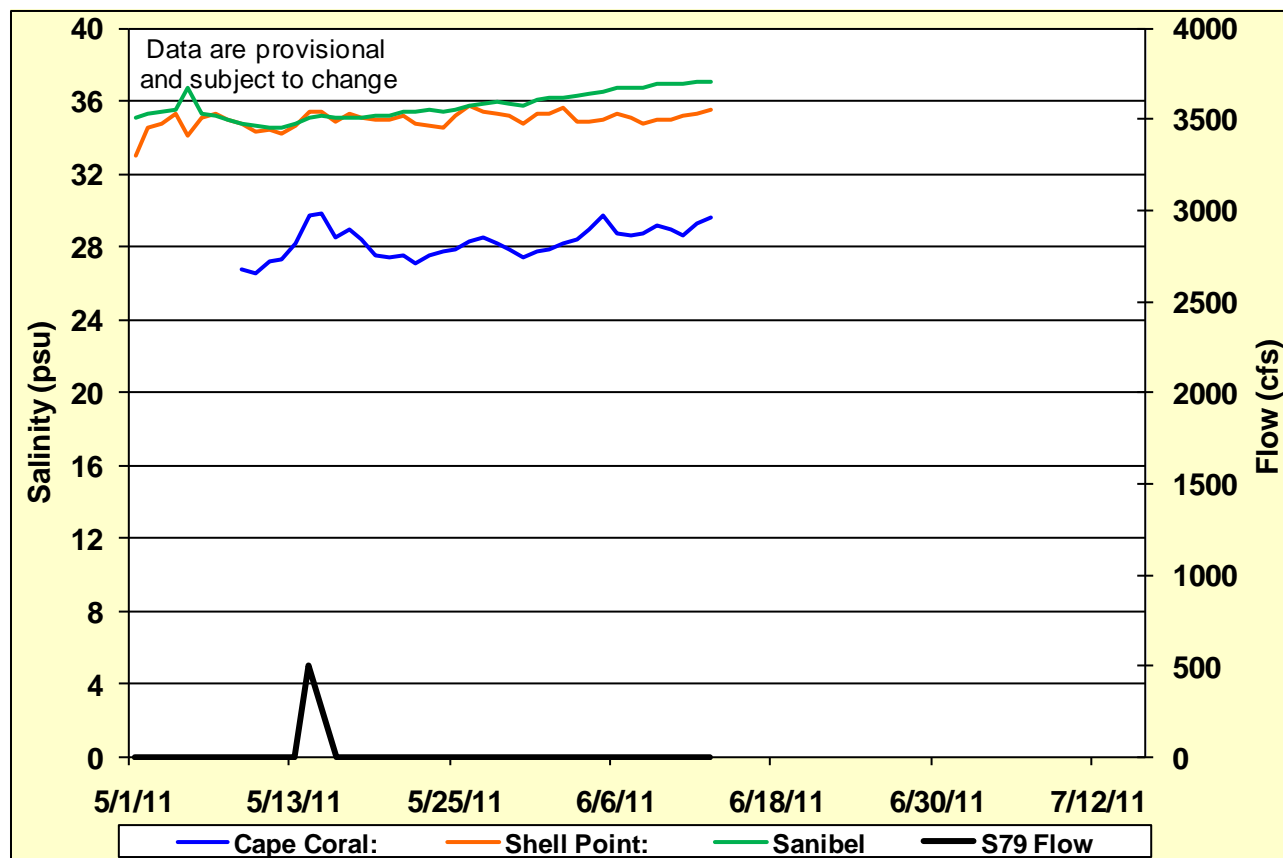


Figure 8. Mean daily flows at S-79 and salinity at lower estuary stations.

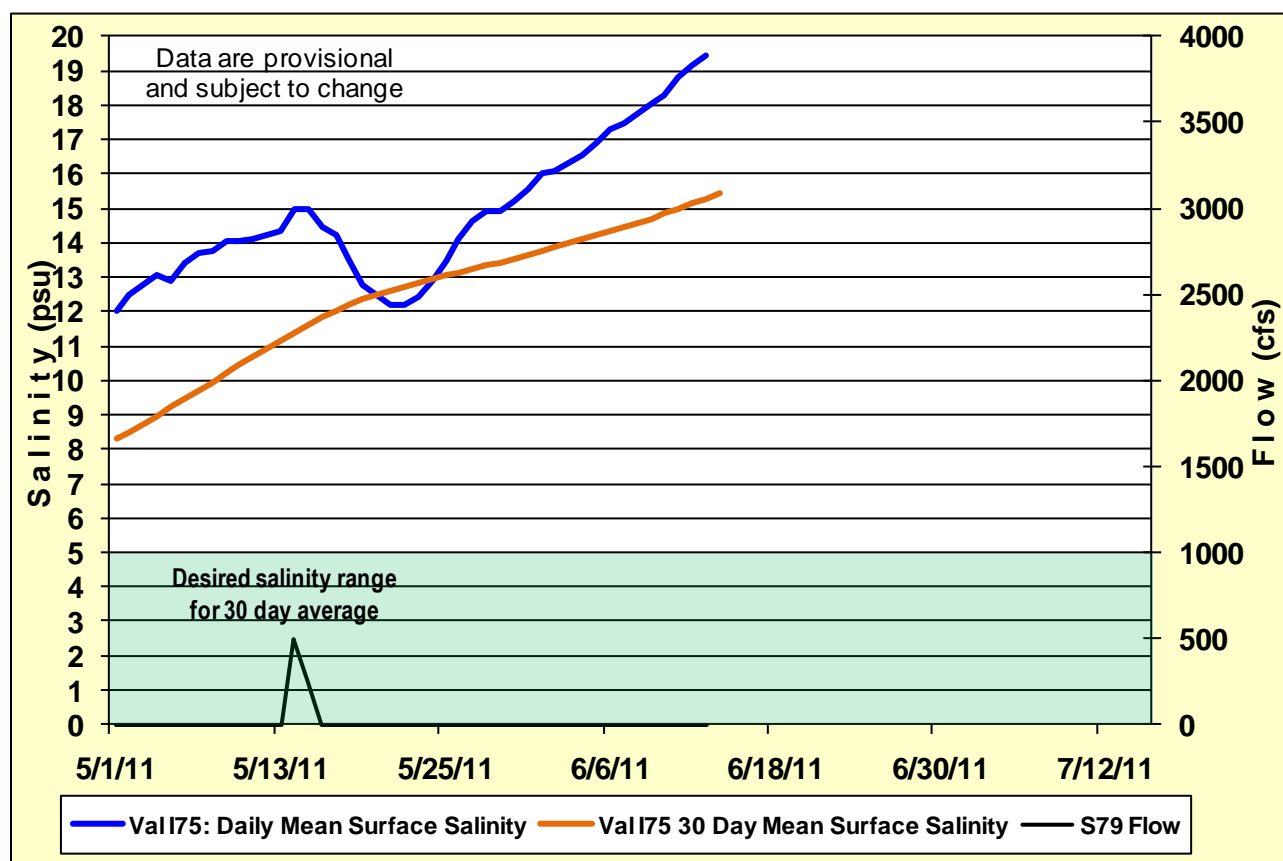


Figure 9. Daily mean surface and 30-day mean surface salinity at Station Vall75.

Caloosahatchee Estuary Flows and Salinity Observed and Forecast Salinity at Val I-75

Forecast 1: S-79=0 cfs & TBR = 60 cfs

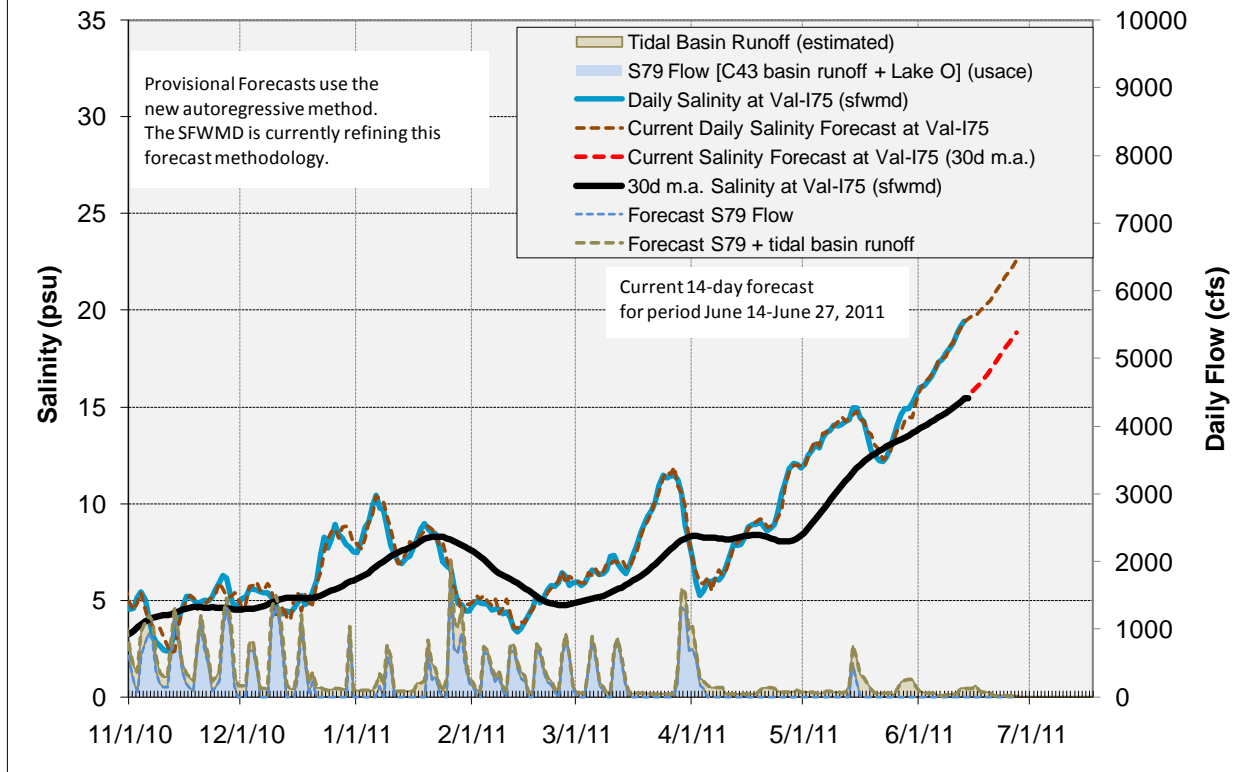
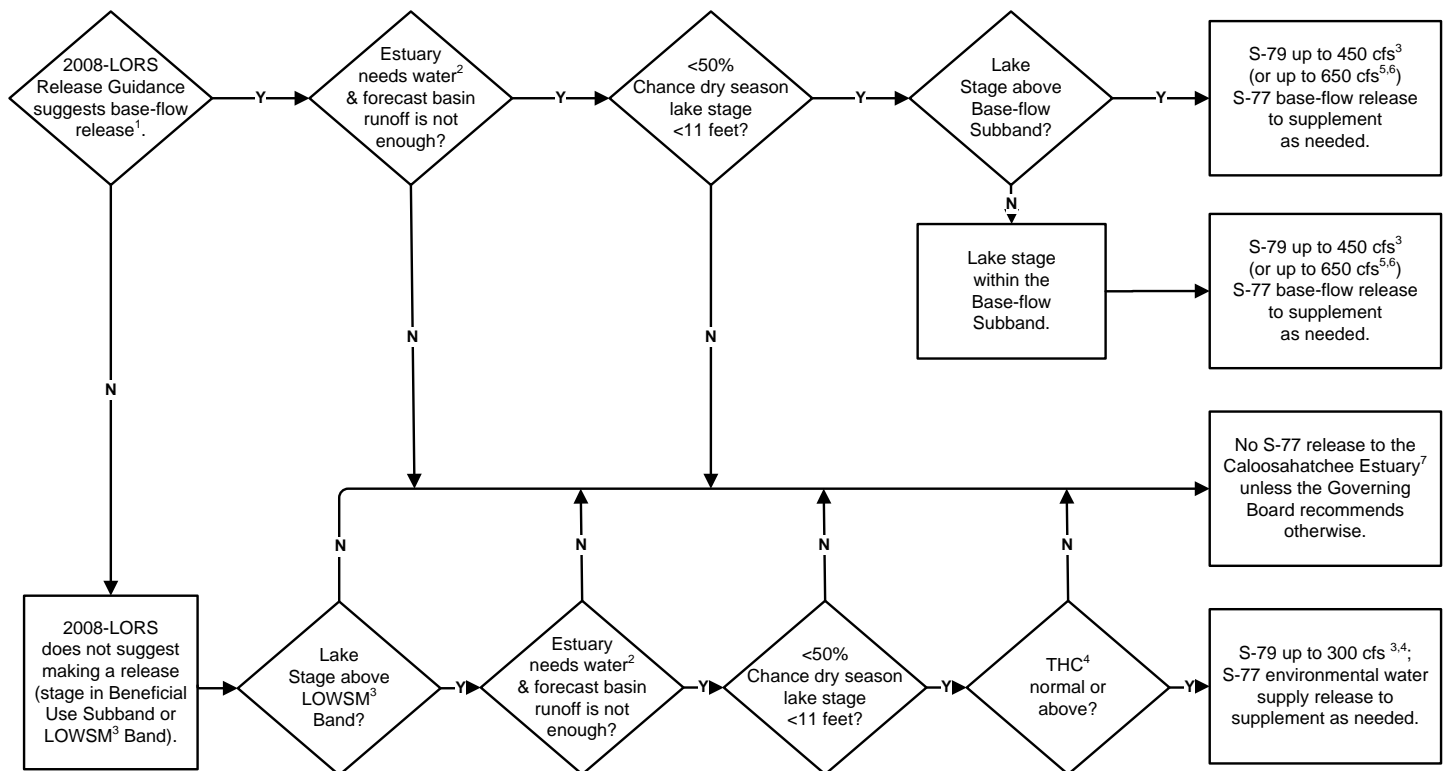


Figure 10. Provisional Val I-75 salinity forecast for June 14 – June 27, 2011.
Created on June 14, 2011.



¹The 2008-LORS Release Guidance (Part D) can suggest base-flow releases in the intermediate, Low or Base-flow Subbands.

²Estuary "needs" water when the 30-day moving average salinity at the I-75 bridge is projected to exceed 5 practical salinity units (psu) within 2 weeks.

³LOWSM=Lake Okeechobee Water Shortage Management.

⁴Tributary Hydrologic Condition (THC) is based on classification of Lake Okeechobee Net Inflow and Palmer Index.

⁵Can release less than the "up to" limit if a lower release is sufficient to reach or sustain the desired estuarine salinity; cfs=cubic feet per second.

⁶After reviewing conditions in the Water Conservation Areas (WCAs), Stormwater Treatment Areas (STAs), ENP, St. Lucie Estuary, and Lake Okeechobee.

⁷Should this condition be reached, the Governing Board will be briefed at the next regularly scheduled meeting as part of the State of the Water Resources agenda item.

Figure 11. Adaptive Protocols flowchart for the Caloosahatchee Estuary.

GREATER EVERGLADES

Rainfall:

The Greater Everglades basins received more than a half inch of rain last week with a local maximum of 3.75 inches in southeastern Everglades National Park (ENP). The week's pan evaporation was high: 1.95 inches, while the weekly average is 1.59 inches (WCA-3A Rainfall-based Management Plan).

Average Rain:	WCA-1:	0.84 inches	WCA-3A:	0.73 inches
	WCA-2A:	0.64 inches	WCA-3B:	0.72 inches
	WCA-2B:	0.92 inches	ENP:	0.58 inches

Water Conservation Areas:

Stages and Depths: Water depths remain underground in all conservation areas and the Park as the drought remains unbroken (see WCA Stages spreadsheet).

Regulation Schedules: Wetland stages responded briefly to the week's rainfall but are falling again (see WCA Regulation Stages). All canal stages are far below their respective floors. Wetland stages in WCA-1 have risen with the last few days' rainfall but are still very far below regulation at just above 14 feet; the canal continued to fall. Sunday's rainfall was reflected in a cessation of decline briefly in WCA-2A, but the wetlands and canal are now declining again. Stages in WCA-3A rose briefly with the local rainfall, and the canals have risen markedly, but the wetland stages remain over two feet below regulation.

Water Depths and Changes: The WDAT maps show the continued progression of this year's severe drought (see Water Depths map). Extremely dry conditions dominate all conservation areas; from 87% to 100% of their surfaces are exposed (see WCA Drought photos).

Note: All of the Ridge and Slough patterns and habitat are experiencing water depths far below ground, further degrading the remaining patterns. This subtropical patterned peatland is extremely rare globally. This is the third severe drought affecting this area since 2006.

North and central WCA-3A are slightly wetter than a week ago, but the rest of the Everglades are drier. Most of the conservation areas and ENP are drier than a month ago except for portions of Big Cypress Preserve, ENP, and southern WCA-2B. Depths in most of the region are now two feet or more lower than a year ago.

Muck Fire Index: As expected from the continued drought, high muck fire risk regions expanded again last week to include over 285,000 acres (see Muck Fire Hazard), up from 220,000 acres last week. Most of the rest of the region is now in the moderate risk category (yellow). Only the few areas in green are considered to remain at low risk of peat fires.

Fires: Fire danger is Moderate to Very High in the Greater Everglades. Drought Conditions are now **EXCEPTIONAL** in Palm Beach, Broward, and northern Miami-Dade.

The "Prairie" Wildfire that began in Pennsuko west of Krome Avenue spread rapidly westward into WCA-3B. It spread rapidly across WCA-3B until a heavy rain helped control its spread on Saturday. It has been 85% contained at 68,300 acres (107 square miles) (see Prairie Fire map and photo).

Several other wildfires are burning in northern Palm Beach County and Martin County. Wind is out of the west, causing some smoke in eastern Palm Beach and Martin counties.

Minimum Flows and Levels (MFLs):

As of June 14, sixteen sites in the Greater Everglades now exceed their MFL rules (see the Minimum Flows and Levels map and table; red dots on the MFL map). These include three new sites: WCA-3A North (3A-3), Central WCA-3A, and the Marl wetlands east of Shark Slough. They join the thirteen that were in violation previously: Rotenberger Wildlife Management Area (WMA), Holeyland WMA, WCA-3A North (3A-2), Northwest WCA-3A, Northeast WCA-3A, WCA-3B, Northeast Shark Slough, two Central Shark Slough sites (NP-33 and NP-36), the Marl wetlands west of Shark Slough, Rocklands Marl Marsh, Taylor Slough, and Florida Bay. All of the above except for Florida Bay are in violation because the exceedance is within the return frequency defined by the MFL rule.

Three sites are near exceedance and violation (yellow dots on the MFL June 14 Status map; see the MFL Status table): WCA-1, WCA-2A, and WCA-2B.

Note: Two of the sites have been estimated because of technical problems at their associated gauges (WCA-2A and the Marl Wetlands East of Shark Slough).

Everglades National Park (ENP) and Florida Bay

Rainfall: Rainfall was patchy again last week across Everglades National Park (ENP) and Florida Bay (see Raindar). Rainfall was heaviest in eastern and central ENP.

- ENP station weekly cumulative precipitation range: 0.0 - 2.0 inches.
- 7-day spatially averaged Raindar totals: 0.54 inches for ENP and 0.76 inches for the C-111 basin.

ENP Wetland Stage: Water levels across ENP wetlands generally declined for the week (see ENP Water Levels). Stations in the ENP panhandle (including EVER6) are measuring so low that readings are not reliable (readings of “nr” below). Before receiving over an inch of rainfall over the weekend, Taylor Slough Bridge reported its lowest daily mean stage measurement in over 30 years. Below are the water levels for each station the District monitors, including the change over the past week and 30 days (through June 12). Note: District and ENP staffs are in the process of verifying ground surface elevations. The water levels described below differ from those used for the SFWDAT.

Station	June 12 water level (feet)	Weekly change (feet)	30 day change (feet)
Shark River Slough (P33)	-0.21	-0.25	+0.12
ENP Panhandle (EVER6)	nr	nr	nr
Northern Taylor Slough (TSB)	-3.30	-0.22	-0.25
Southern Taylor Slough(CP)	-0.26	-0.06	-0.62

Florida Bay Salinity: Salinity continues to climb across Florida Bay. The 30-day moving average salinity at the Taylor River platform remains in exceedance of the Florida Bay Minimum Flows and Levels (MFL) Rule at 32.7 psu (practical salinity units) (as of June 12). An exceedance of the Florida Bay MFL rule occurs when the 30-day moving average concentration is over 30 psu at the Taylor River platform. A violation occurs when there are two or more exceedances in two consecutive years within a 10-year moving window. Its last consecutive exceedance event was in 2008 – 2009. With this exceedance in 2011, a violation of the MFL would occur if there is another exceedance in 2012.

Central Florida Bay remains hypersaline (over 40 psu). While concentrations are just four psu above average at Whipray Basin, salinity in the more near-shore (and shallower) area of Terrapin Bay is well above average (nearly 14 psu) for early to mid-June, due to the delay in the rainy season onset. Continued hot and dry conditions make evaporation the dominant water budget term, facilitating the continuing rise of salinity across all areas of Florida Bay. Figures are provided for three indicator stations (see ENP Salinity LM/WB and ENP Salinity MFL/TR). Data are also provided in the table below.

Area of Florida Bay	June 12 Salinity (psu)	Weekly Change (psu)
C-111 basin near-shore embayments (Long Sound)	38.9	+0.9
Taylor Slough near-shore embayments (Little Madeira Bay)	35.9	+0.7
Taylor Slough transition zones ponds (Taylor River)	35.7	+1.1
Northeastern Bay (Duck Key)	38.7	+1.3
Central near-shore embayments (McCormick Creek and Terrapin Bay)	48.1	+0.3
Central Bay (Whipray Basin)	44.1	-0.1
Shark River Slough transition zones ponds (Tarpon Bay East)	20.7	+3.0

Wildlife

The District conducted an aerial wading bird survey on June 8. The WCAs are now extremely dry and the number of foraging birds is greatly reduced (see Foraging Wading Bird Flocks and Depths map). The number of Wood Stork nestlings at Tamiami West colony has declined considerably relative to a few weeks ago and those remaining appeared to be in poor health. No nestlings were evident at Jetport South colony. Many of the missing nestlings possibly starved given that many were too young to fledge. White Ibis nestlings appear to be faring better with large numbers of pre-fledgling birds observed at the 6th Bridge colony.

Snail Kites: The most recent Snail Kite survey, conducted in late May to early June, showed dwindling numbers of Kites throughout the State, with observed Kites numbering 322 including young of the year, down from 456 during the previous survey. The drop in observed numbers is probably partially due to dispersal into peripheral habitats, but it may also be caused by other factors including juvenile and adult mortality. In south Florida, Snail Kites continue to leave large wetland units as conditions become even drier there. WCA-3 was not surveyed at all because of dry conditions (inaccessible). Small numbers of Kites (from three to ten per area) were observed in WCA-2A, Loxahatchee, Grassy Waters, and the STAs. Elsewhere in their range, nest initiation also continued to drop considerably, with only eight new nests in the Kissimmee Chain of Lakes. Increasing numbers and proportions of Kites were observed on Lake Toho. This trend is likely to continue until Snail Kite areas begin to receive more rainfall.

Apple snails: Nothing new to report.

Cape Sable Seaside Sparrow (results reported for subpopulation A only): Nothing new to report.

NP-205 stage remains below ground surface (3.26 feet NGVD) with a depth of approximately -2.75 feet. P-34 stage remains below ground surface (1.49 feet NGVD) with a depth of -0.70 feet. A NP-205 stage of 5.0 feet allows approximately 100% of the western marl prairie habitat to become available (unflooded) for potential nesting and/or habitat maintenance. The NP-205 stage has been below 5.0 feet since February 23. The 60 consecutive days breeding window for sparrows began March 1, 105 days ago.

Water Management Recommendations

As long as the extremely dry conditions persist, any opportunity to rehydrate the conservation areas, particularly WCA-3A, with clean water would be very welcome ecologically.

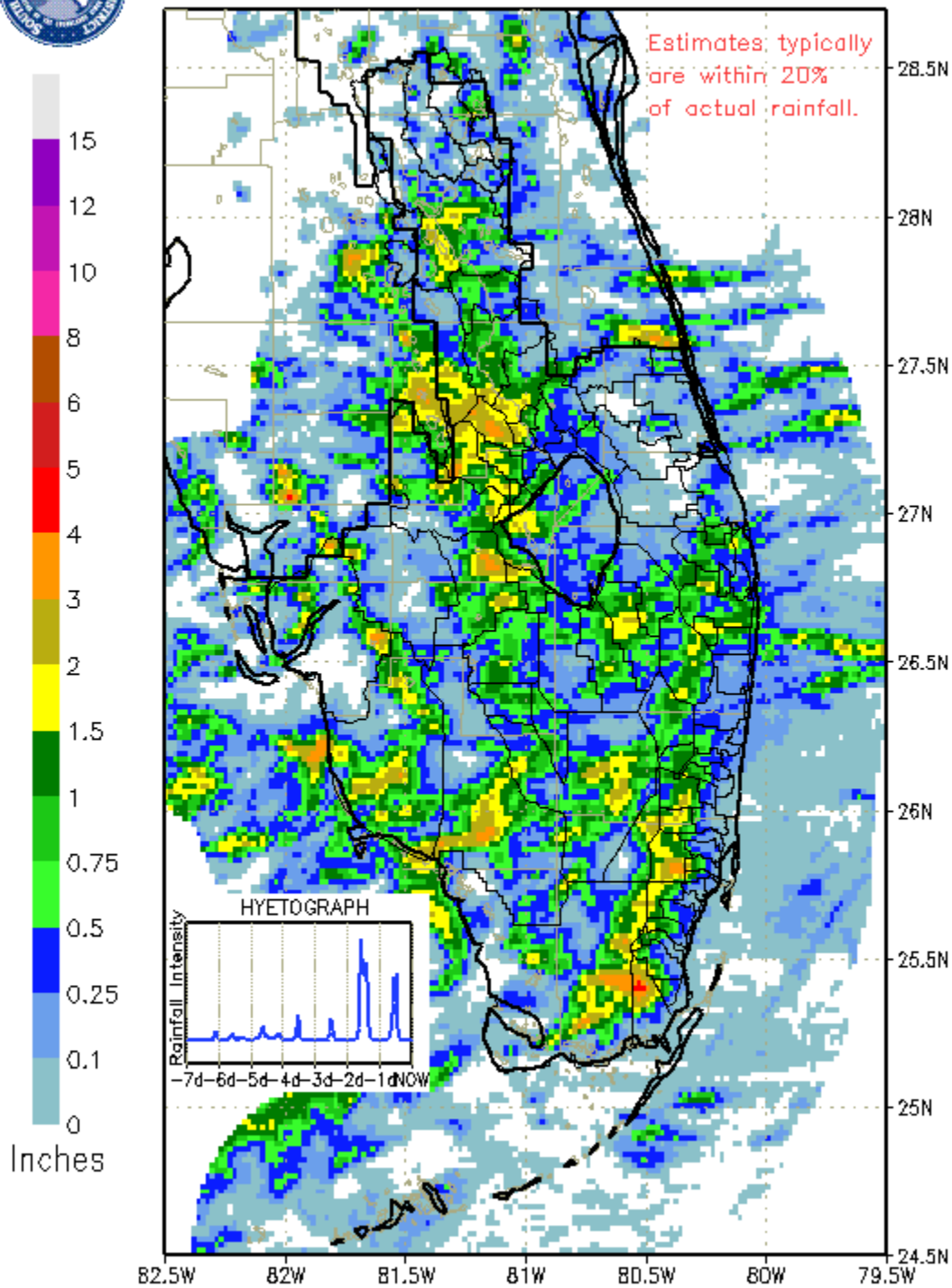
Raindar:



SFWMD RAINDAR 7-DAY RAINFALL ESTIMATES

FROM: 0515 EST, 06/07/2011

THROUGH: 0515 EST, 06/14/2011



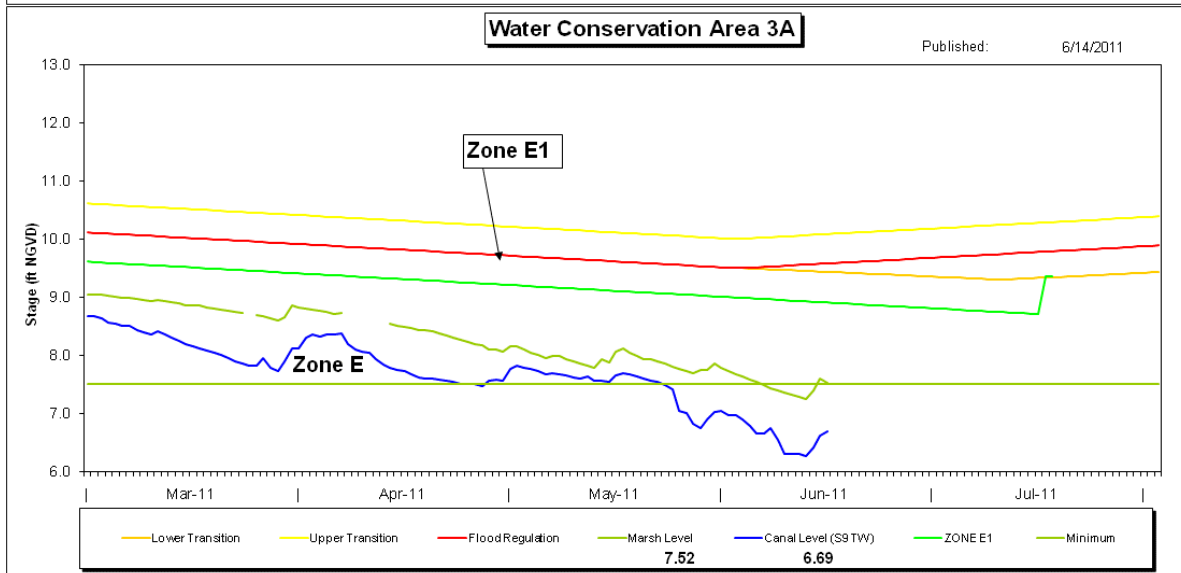
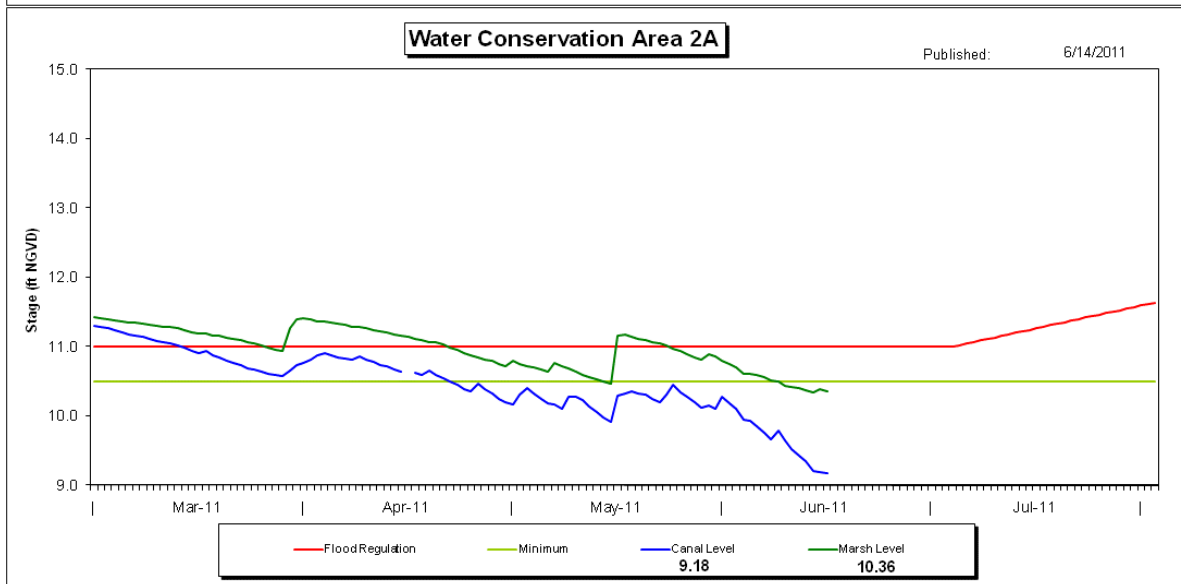
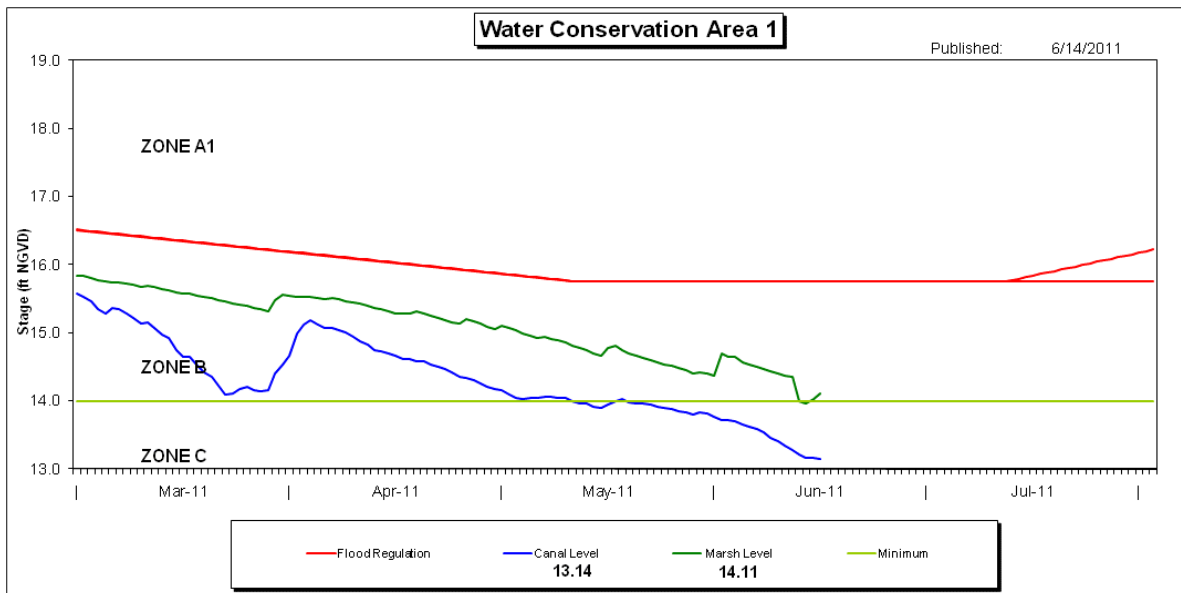
DISTRICT-WIDE RAINFALL ESTIMATE: 0.618"

WCA Stages (BG=below ground, Dry=gauge has bottomed out, na=not applicable):

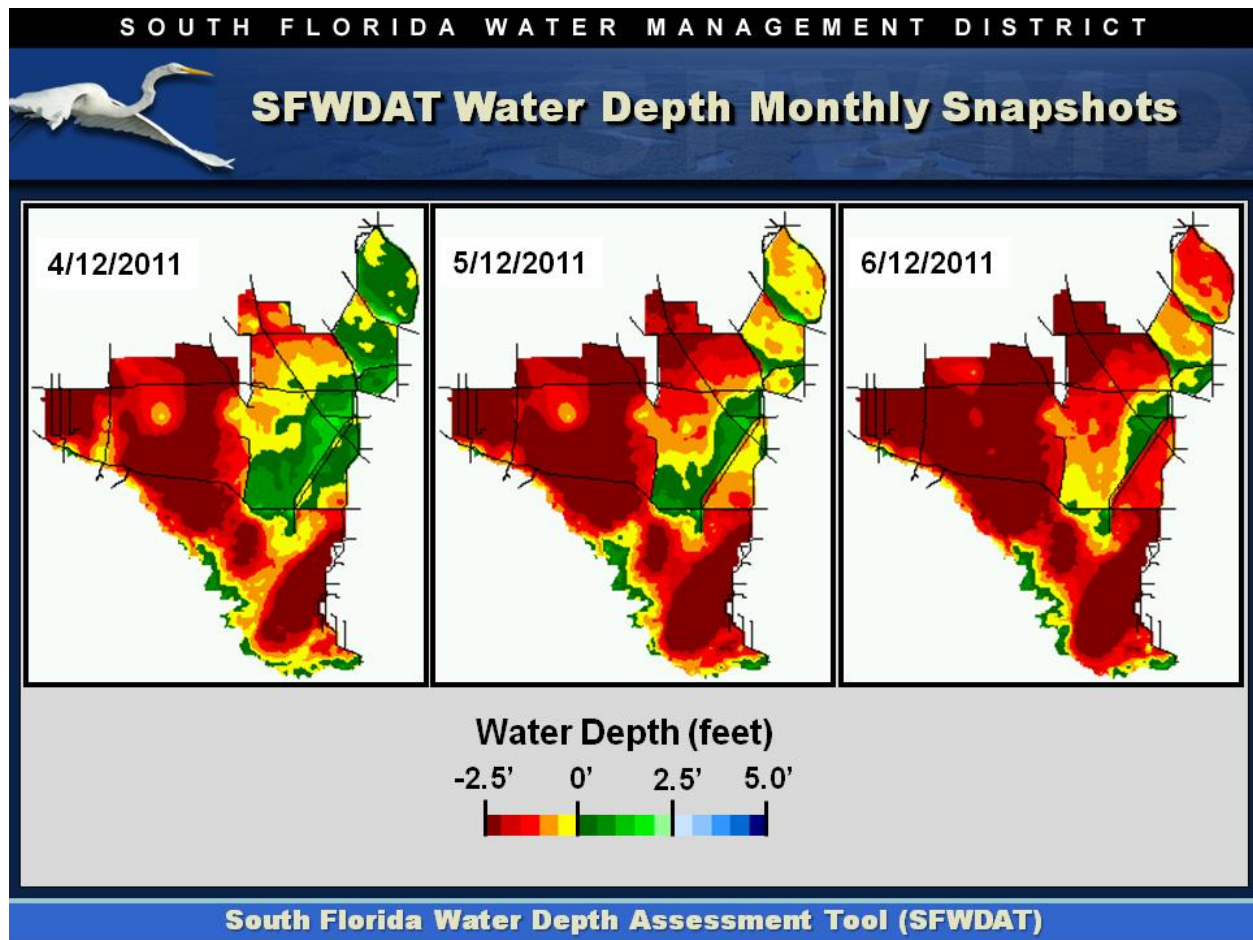
WCA and ENP Hydrology Data with Environmental Ratings

Area	Gage	Ground Elevation	Stage 5/17/11	Stage 5/24/11	Stage 5/31/11	Stage 6/7/11	Stage 6/14/11	Stage Change
WCA-1	1-7	15.4	14.98	14.71	14.55	14.32	14.41	0.09
	1-9	14.7	15.19	15.02	14.84	14.66	14.58	0.02
	1-8T		14.08	13.82	13.67	13.67	13.38	-0.29
WCA-2A	2-17	11.1	11.14	10.94	10.75	10.49	10.36	-0.13
WCA-2B	99	6.8	Eqp	Eqp	6.10*L	6.10*L	5.48	Eqp
	EDEN-13	6.7	Dry	Dry	Dry	Dry	Dry L	Dry
WCA-3A	62	10.1	8.91	8.91	Dry	Dry	Dry L	Dry
	63	9.08	8.41	8.41	Dry	Dry	Dry I	Dry
	64	8.49	7.86	7.56	7.74	7.44	7.62	0.18
	65	7.3	7.90	7.68	7.59	7.25	7.06	-0.19
WCA-3B	76	6.32	6.02	5.71	5.44	5.10	5.14	0.04
	71	6.52	5.81	5.54	5.28	4.98	4.82	-0.16
	SRS1	6.23	5.08	4.75	4.53	4.22	4.03	-0.19
ENP	NESRS2	5.62	Dry	Dry	Dry	Dry	Dry	Dry
			1 week stage change 5/17/11	1 week stage change 5/24/11	1 week stage change 5/31/11	1 week stage change 6/7/11	1 week stage change 6/14/11	Reces- sion rate
	WCA-1	1-7	-0.06	-0.27	-0.16	-0.23	0.09	na
		1-9	-0.08	-0.17	-0.18	-0.28	0.02	na
		1-8T	-0.04	-0.26	-0.15	0.00	-0.29	na
	WCA-2A	2-17	0.55	-0.20	-0.19	-0.26	-0.13	na
	WCA-2B	99	Eqp	Eqp	Eqp	Eqp	Eqp	na
		EDEN-13	Dry	Dry	Dry	Dry	Dry	na
	WCA-3A	62	0.00	0.00	Dry	Dry	Dry	na
		63	0.00	0.00	Dry	Dry	Dry	na
		64	0.14	-0.30	0.18	-0.30	0.18	na
		65	0.03	-0.22	-0.09	-0.34	-0.19	na
	WCA-3B	76	-0.29	-0.31	-0.27	-0.34	0.04	na
		71	-0.15	-0.27	-0.26	-0.30	-0.16	na
		SRS1	-0.05	-0.33	-0.22	-0.31	-0.19	na
	ENP	NESRS2	Dry	Dry	Dry	Dry	Dry	na
			Depth 5/17/11	Depth 5/24/11	Depth 5/31/11	Depth 6/7/11	Depth 6/14/11	Forag- ing water depths
	WCA-1	1-7	-0.42	-0.69	-0.85	-1.08	-0.99	Poor
		1-9	0.49	0.32	0.14	-0.14	-0.12	Poor
		1-8T						
	WCA-2A	2-17	0.04	-0.16	-0.35	-0.61	-0.74	Poor
	WCA-2B	99	Eqp	Eqp	Eqp	Eqp	Eqp	na
		EDEN-13	Dry	Dry	Dry	Dry	Dry	Poor
	WCA-3A	62	-1.19	-1.19	Dry	Dry	Dry	Poor
		63	-0.67	-0.67	Dry	Dry	Dry	Poor
		64	-0.63	-0.93	-0.75	-1.05	-0.87	Poor
		65	0.60	0.38	0.29	-0.05	-0.24	Poor
	WCA-3B	76	-0.30	-0.61	-0.88	-1.22	-1.18	Poor
		71	-0.71	-0.98	-1.24	-1.54	-1.70	Poor
		SRS1	-1.15	-1.48	-1.70	-2.01	-2.20	Poor
	ENP	NESRS2	Dry	Dry	Dry	Dry	Dry	Poor

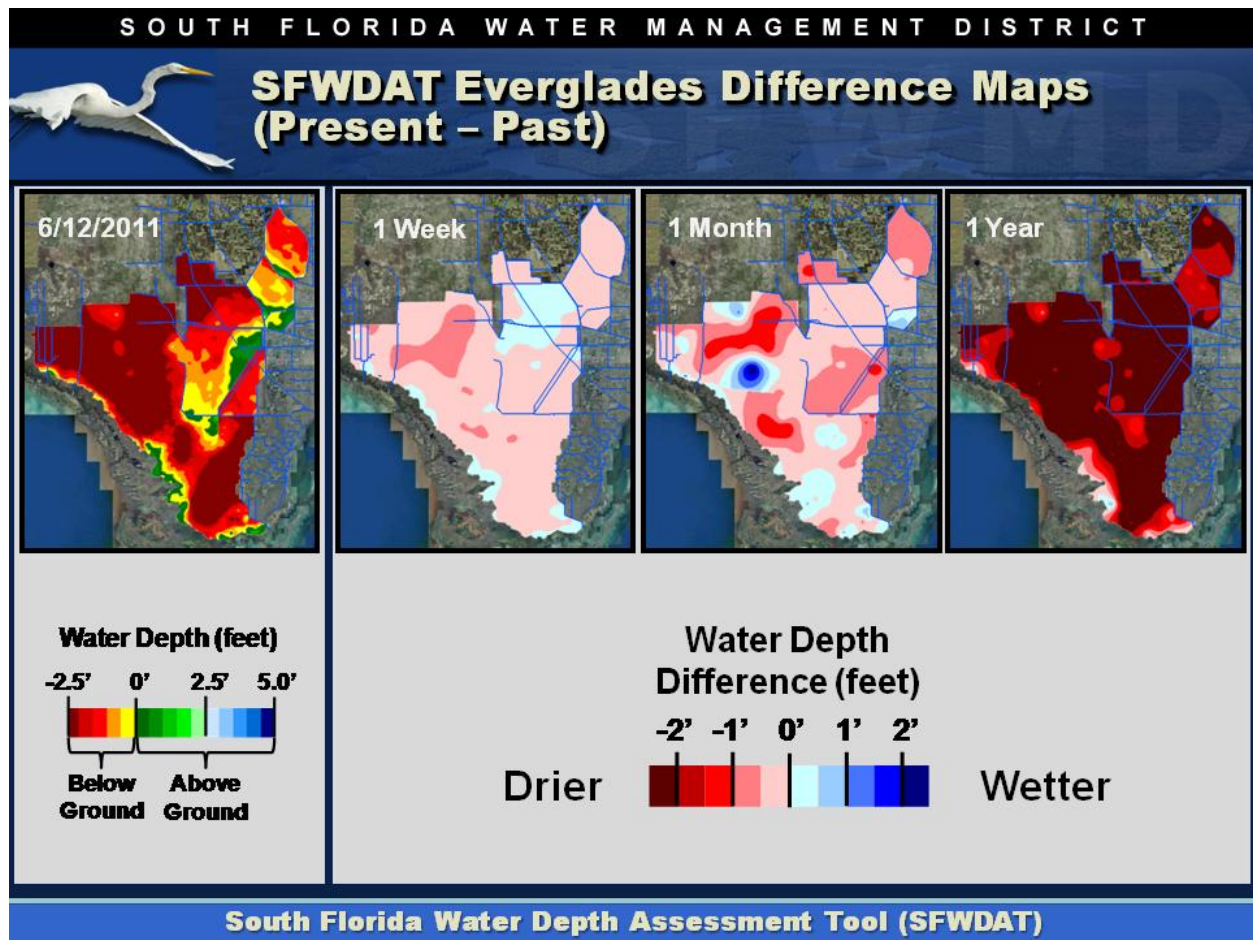
WCA Regulation Schedules:



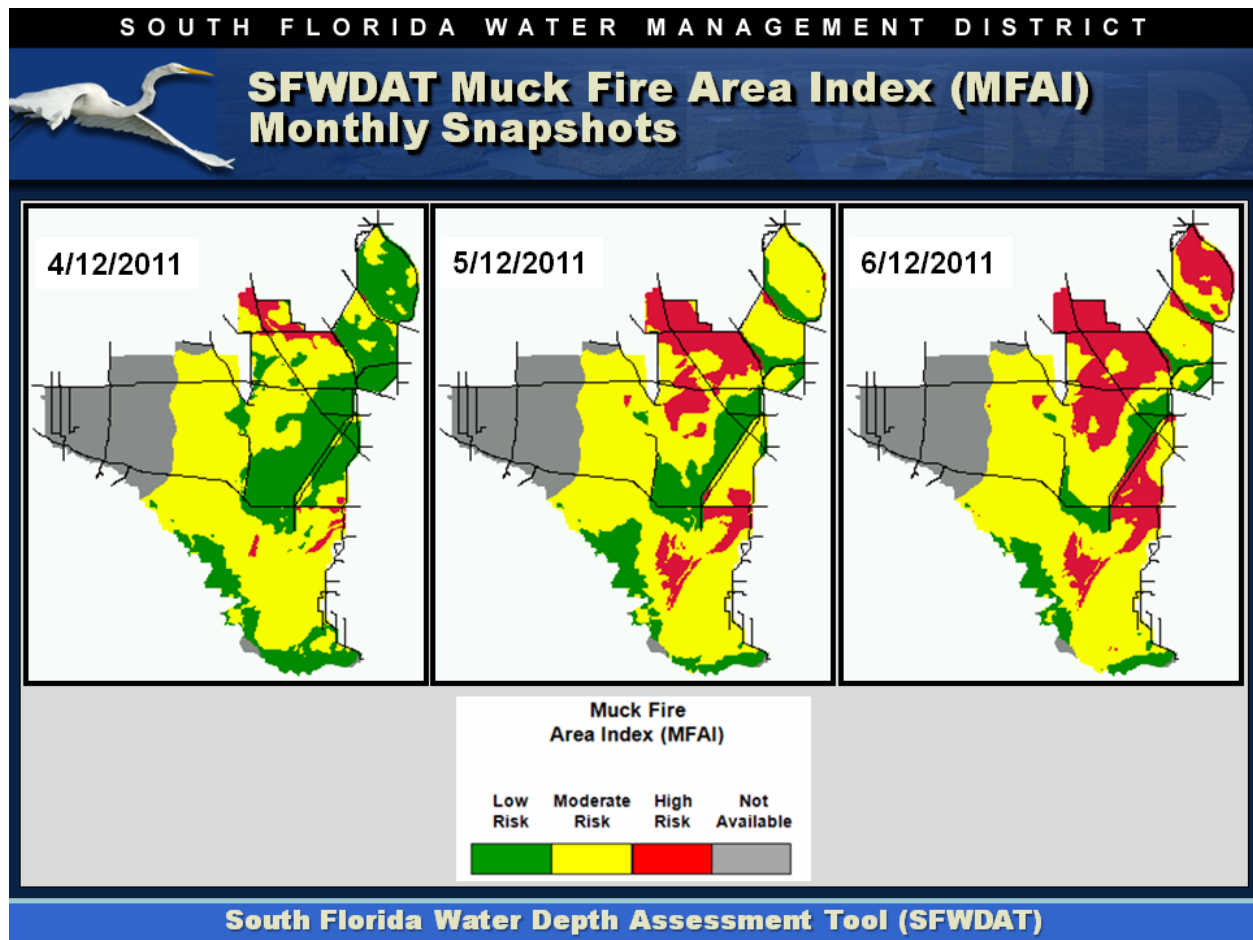
Water Depths:



Depth Differences:



Muck Fire Hazard:



Prairie Fire map (6/13/2011)



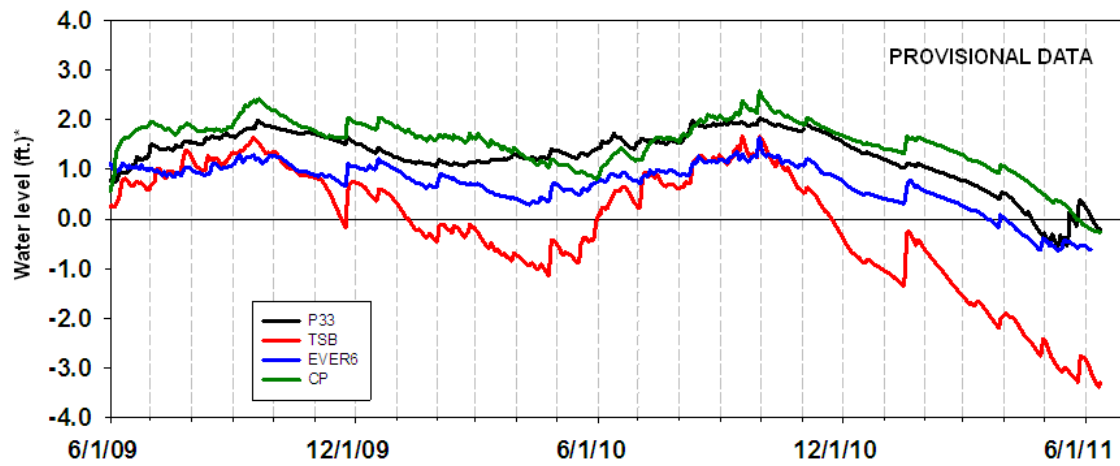
Prairie Fire, 6/8/2011





ENP Water Levels:

Water Levels at ENP Wetland Monitoring Stations

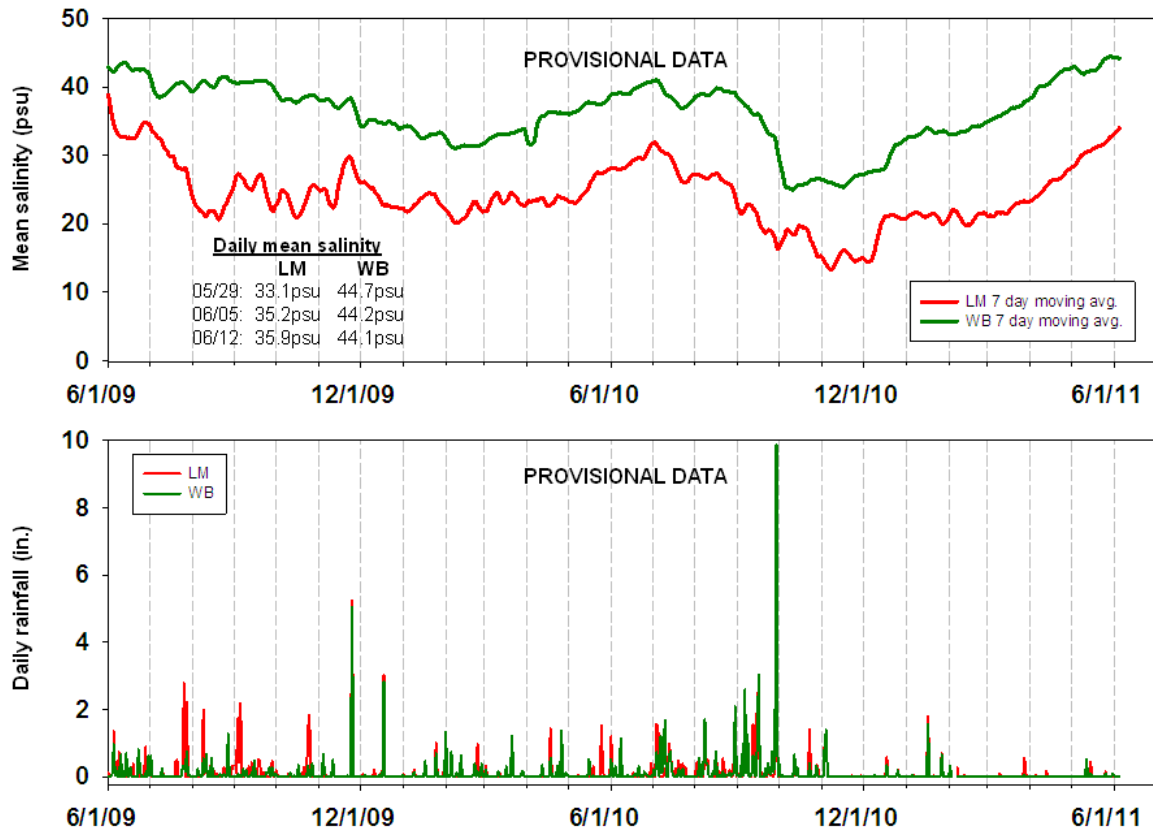


DAILY MEAN WATER LEVEL (ft)				
Date	P33	TSB	EVER6	CP
5/29	0.35	-2.77	-0.53	-0.08
6/05	0.04	-3.08	-0.61	-0.21
6/12	-0.21	-3.30		-0.26

*note: calculated using ground surface elevation values (NAVD29) from ENP

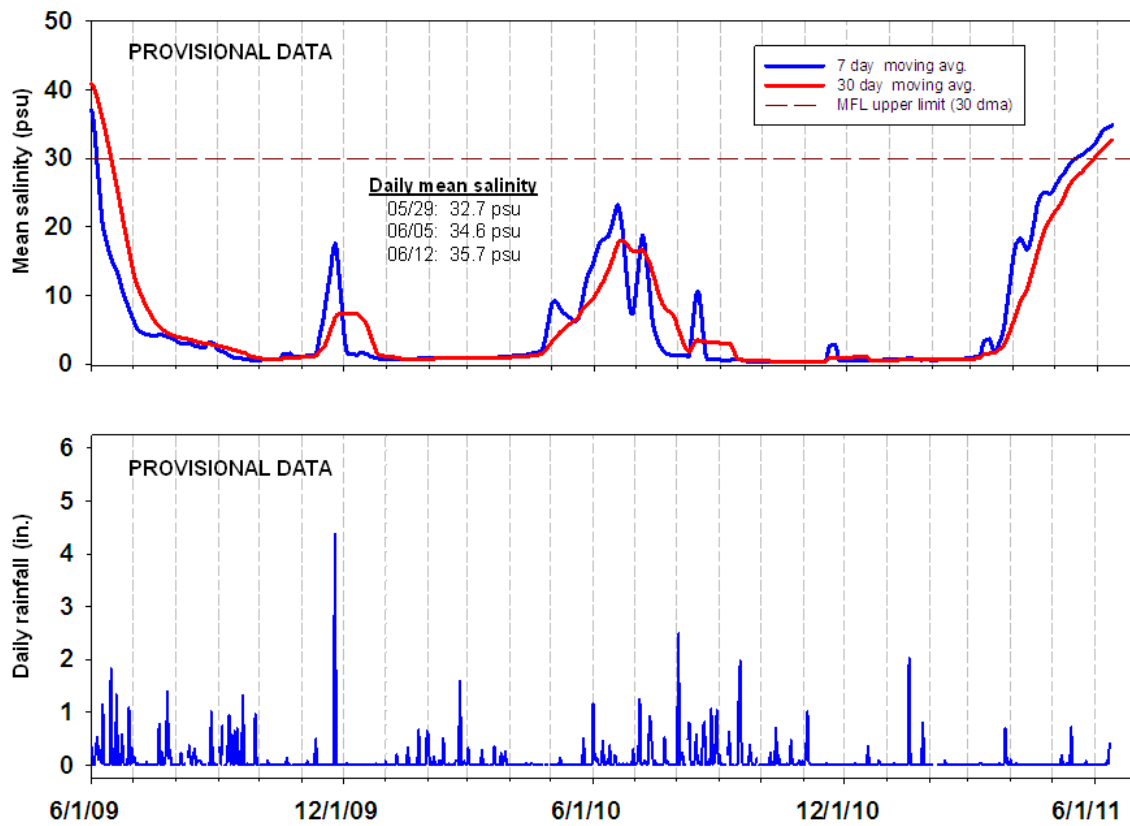
ENP LM/WB Salinity:

Salinity and Rainfall in Little Madeira Bay (station LM) and Whipray Basin (station WB)

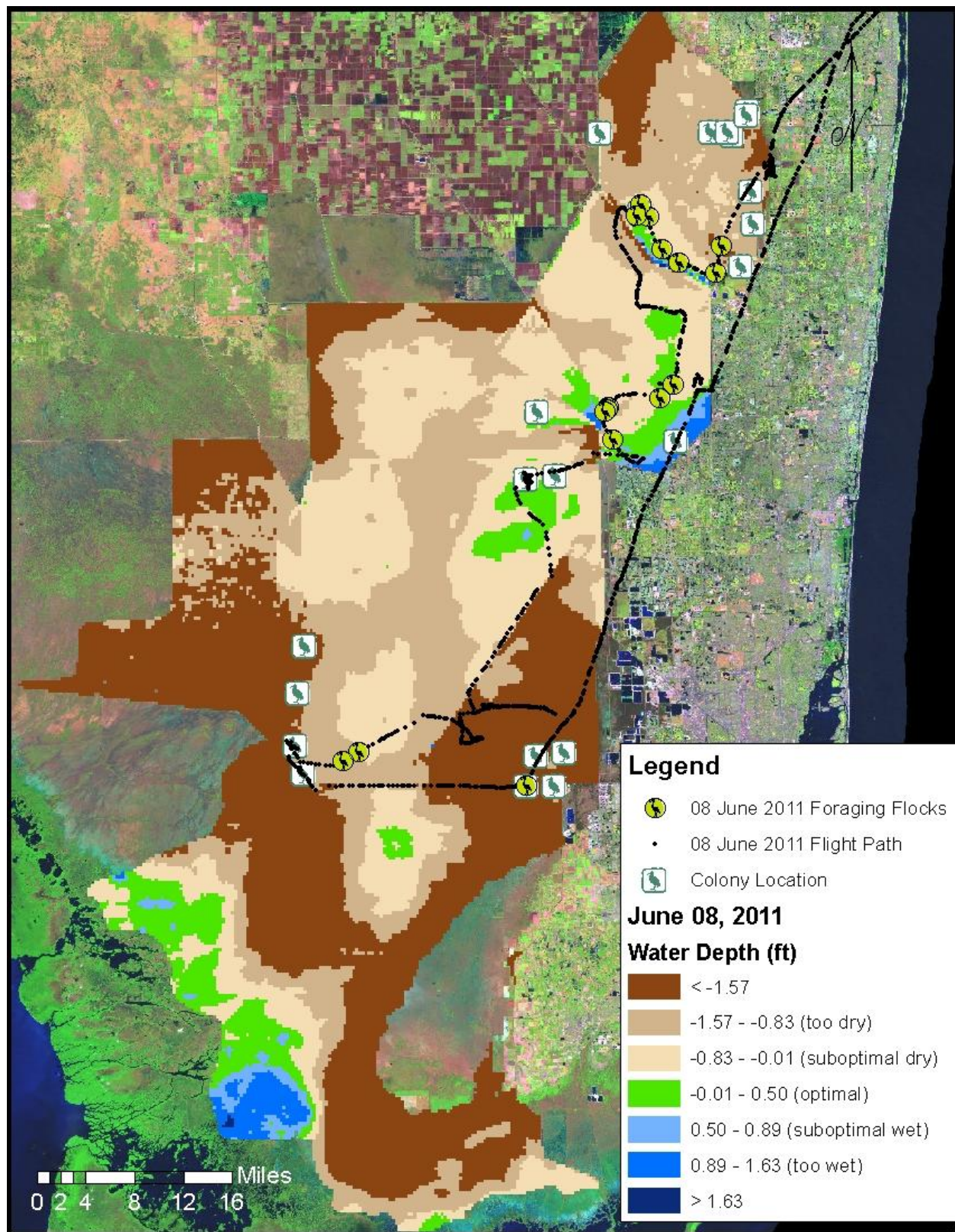


ENP MFL/TR Salinity:

Salinity, Florida Bay MFL Tracking, and Rainfall in Taylor River Ponds (station TR)



Foraging Wading Bird Flocks and Depths:



Drought in the WCAs

Northern WCA3A



WCA3A north of L67



WCA-3A along northern L67



STATUS OF MINIMUM FLOWS AND LEVELS

The SFWMD has established many Minimum Flows and Levels throughout the South Florida ecosystem. The table below, updated every two weeks, provides the status of a portion of the MFLs across the regions. MFLs within the Everglades, Lake Okeechobee, and the Caloosahatchee River that are part of or served by the C&SF Project were not achieved immediately upon adoption of the MFL rule. This is largely because of the lack of adequate regional storage, including U.S. Army Corps of Engineer's regulation schedule effects, or ineffective water drainage and distribution infrastructure. This means meeting the MFL is dependent upon implementation of a recovery strategy, which is specific to each water body and can include future construction of storage and distribution infrastructure and associated operational changes.

The categories shown on the table are defined as follows:

Status (June 14, 2011)

Provides a present status of the MFL exceedance criteria using the best available information. There are three status designations that are shaded accordingly.

Compliant (Green): None of the MFL criteria are exceeded

Near Exceedance (Yellow): one of the mfl criteria are exceeded; e.g. duration but not depth, concentration but not duration

Exceedance (Red): the mfl criteria are presently exceeded

30-day Outlook

Provides a forecasted outlook of MFL exceedances for the next 30 days based on simple trend projections (e.g. graph trend extension over the next 30 days). There are three status designations that are shaded accordingly.

Compliant (Green): None of the MFL criteria would likely be exceeded within the next 30 days

Near Exceedance (Yellow): one of the mfl criteria are likely to be exceeded within the next 30 days; e.g. duration but not depth, concentration but not duration

Exceedance (Red): the mfl criteria are likely to be exceeded within the next 30 days.

Seasonal Outlook

Provides a forecasted outlook of MFL exceedances and violations relative to the present water year. There are four status designations that are shaded accordingly.

Compliance Probable (Green): No exceedance is likely due to the current trend and position relative to historical long-term trends

Exceedance Probable (Yellow): *A exceedance is likely due to the current trend and position relative to historical long-term trends, but the last exceedance date is beyond the return frequency date window (aligns with date of last exceedance column).*

Violation Probable (Orange): A violation is likely based on the current trend and position relative to historical long-term trends, and the last exceedance date is within the return frequency date window (aligns with date of last exceedance column).

Violation (Red): A violation is presently occurring or has occurred within the present water year

Date of Last Exceedance

Provides the last exceedance date if there has been an exceedance since inception of the MFL or if the MFL is presently in exceedance. The shading denotes the proximity of the exceedance date with respect to the return frequency of the MFL violation criteria such that:

Green: either there are no exceedances since inception or the last exceedance date is beyond the return frequency window for a violation with the present date; should an exceedance occur there would not be a violation.

Yellow: the last exceedance date is within the return frequency window for a violation with the present date; should an exceedance occur there would be a violation

Red: Presently in exceedance

MFL Status and Seasonal Outlook

MFL Prevention Water Bodies	Status (6/14/2011)	30-day Outlook	Seasonal Outlook	Date of Last Exceedance
Lake Istokpoga	Compliant	Compliant	Compliance Probable	None
St. Lucie Estuary	Compliant	Compliant	Compliance Probable	None
Florida Bay	Exceedance	Exceedance	Exceedance	Present Exceedance
MFL Recovery Water Bodies	Status (6/14/2011)	30-day Outlook	Seasonal Outlook	Date of Last Exceedance
Lake Okeechobee	Compliant	Near Exceedance	Violation Probable	8/3/2008
Northwest Fork of the Loxahatchee River	Exceedance	Exceedance	Violation	Present Exceedance
Caloosahatchee River	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: WCA-1 (1-7)	Near Exceedance	Exceedance	Exceedance Probable	None
Everglades: WCA-2A (2A-17)	Near Exceedance	Exceedance	Violation Probable	5/18/2009
Everglades: WCA-2B (SITE_99)	Near Exceedance*	Exceedance*	Violation Probable*	7/1/2007
Everglades: WCA-3A North (3A-NE)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: WCA-3A North (3A-NW)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: WCA-3A North (3A-2)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: WCA-3A North (3A-3)	Exceedance	Exceedance	Exceedance	Present Exceedance
Everglades: WCA-3A Central (3A-4)	Exceedance	Exceedance	Exceedance	Present Exceedance
Everglades: WCA-3A South (3A-28)	Compliant	Near Exceedance	Exceedance Probable	None
Everglades: WCA-3B (3BS1W1)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: Rotenberger WMA (Rotts)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: Holeyland WMA (HoleyG)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: NE Shark Slough (NESRS-2)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: Central Shark Slough (NP-33)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: Central Shark Slough (NP-36)	Exceedance	Exceedance	Exceedance	Present Exceedance
Everglades: Marl wetlands east of Shark Slough (NP-38)	Exceedance*	Exceedance*	Exceedance*	Present Exceedance*
Everglades: Marl wetlands west of Shark Slough (NP-201)	Compliant	Compliant	Compliance Probable	5/29/2009
Everglades: Marl wetlands west of Shark Slough (G-620)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: Rockland marl marsh (G-1502)	Exceedance	Exceedance	Violation	Present Exceedance
Everglades: Taylor Slough (NP-67)	Exceedance	Exceedance	Violation	Present Exceedance

* Status and outlooks have been estimated due to monitoring issues at WCA-2A (SITE_99) and ENP (NP-38) locations.

MFL Status and Seasonal Outlook

